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24

EVENINGS AT HOME;

OR,

THE JUVENILE BUDGET OPENED:

CONSISTING OF

A VARIETY OF MISCELLANEOUS PIECES

FOR THE

Instruction and Amusement of

YOUNG PERSONS;

BY DR. AIKIN AND MRS. BARBAULD.

FOURTEENTH EDITION.

Carefully revised and corrected throughout by
ARTHUR AIKIN, ESQ. FLS., &c.

And with some additional Pieces, by the Authors.

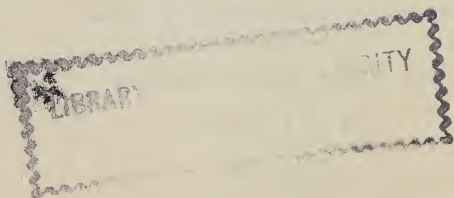
THE WHOLE NEWLY ARRANGED.

IN FOUR VOLUMES.

VOL. III.

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1826.



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SEVENTEENTH EVENING.

PHAETON JUNIOR ;

OR, THE GIG DEMOLISHED.

YE heroes of the upper form,
Who long for whip and reins,
Come listen to a dismal tale,
Set forth in dismal strains.

Young *Jehu* was a lad of fame,
As all the school could tell ;
At cricket, taw, and prison-bars,
He bore away the bell.

Now welcome Whitsuntide was come,
And boys with merry hearts
Were gone to visit dear mamma,
And eat her pies and tarts.

As soon as *Jehu* saw his sire,
A boon ! a boon ! he cried ;
O, if I am your darling boy,
Let me not be denied.

My darling boy indeed thou art,
The father wise replied;
So name the boon; I promise thee
It shall not be denied.

Then give me, Sir, your long-lashed whip,
And give your gig and pair,
To drive alone to yonder town,
And flourish through the fair.

The father shook his head; My son,
You know not what you ask,
To drive a gig in crowded streets
Is no such easy task.

The horses, full of rest and corn,
Scarce I myself can guide;
And much I fear, if you attempt,
Some mischief will betide.

Then think dear boy, of something else,
That's better worth your wishing;
A bow and quiver, bats and balls,
A rod and lines for fishing.

But nothing could young Jehu please
Except a touch at driving;
'Twas all in vain, his father found,
To spend his breath in striving.

At least attend, rash boy ! he cried,
 And follow good advice,
 Or in a ditch both gig and you
 Will tumble in a trice.

Spare, spare the whip, hold hard the reins,
 The steeds go fast enough ;
 Keep in the middle beaten track,
 Nor cross the ruts so rough :

And when within the town you come,
 Be sure, with special care,
 Drive clear of sign-posts, booths, and stalls,
 And monsters of the fair.

The youth scarce heard his father out,
 But roar'd—Bring out the whisky !
 With joy he view'd the rolling wheels,
 And prancing ponies frisky.

He seiz'd the reins, and up he sprung,
 And wav'd the whistling lash ;
 Take care ; take care ! his father cried :
 But off he went slap-dash.

Who's this light spark ? the horses thought,
 We'll try your strength, young master ;
 So o'er the ragged turnpike road
 Still faster ran and faster.

Young Jehu, tott'ring in his seat,
Now wish'd to pull them in ;
But pulling from so young a hand
They valued not a pin.

A drove of grunting pigs before
Now fill'd up half the way ;
Dash through the midst the horses drove,
And made a rueful day :

For some were trampled under foot,
Some crush'd beneath the wheel ;
Lord ! how the drivers curs'd and swore,
And how the pigs did squeal !

A farmer's wife, on old blind Ball,
Went slowly on the road,
With butter, eggs, and cheese, and cream,
In two large panniers stow'd.

Ere Ball could stride the rut, amain
The gig came thund'ring on,
Crash went the panniers, and the dame
And Ball lay overthrown.

Now through the town the mettled pair
Ran ratt'ling o'er the stones ;
They drove the crowd from side to side,
And shook poor Jehu's bones.

When lo! directly in their course,
 A monstrous form appear'd ;
 A shaggy bear that stalk'd and roar'd,
 On hinder legs uprear'd.

Sideways they started at the sight,
 And whisk'd the gig half round,
 Then cross the crowded market-place
 They flew with furious bound.

First o'er a heap of crock'ry ware
 The rapid car they whirl'd ;
 And jugs, and mugs, and pots, and pans,
 In fragments wide they hurl'd.

A booth stood near with tempting cakes
 And groc'ry richly fraught ;
 All Birmingham on t'other side
 The dazzled optics caught.

With active spring the nimble steeds
 Rush'd through the pass between,
 And scarcely touch'd ; the car behind,
 Got through not quite so clean :

For while one wheel one stall engag'd,
 Its fellow took the other ;
 Dire was the clash ; down fell the booths,
 And made a dreadful pother.

Nuts, oranges, and gingerbread,
And figs here roll'd around ;
And scissars, knives, and thimbles there
Bestrew'd the glitt'ring ground.

The fall of boards, the shouts and cries,
Urg'd on the horses faster ;
And as they flew, at ev'ry step
They caus'd some new disaster.

Here lay o'erturn'd, in woful plight,
A pedlar and his pack ;
There, in a showman's broken box,
All London went to wrack.

But now the fates decreed to stop
The ruin of the day,
And make the gig and driver too
A heavy reck'ning pay.

A ditch there lay both broad and deep,
Where streams as black as Styx
From every quarter of the town
Their muddy currents mix.

Down to its brink in heedless haste
The frantic horses flew,
And in the midst, with sudden jerk,
Their burden overthrew.

The prostrate gig with desp'rate force
 They soon pull'd out again,
 And at their heels, in ruin dire,
 Dragg'd lumb'ring o'er the plain.

Here lay a wheel, the axle there
 The body there remain'd,
 Till, sever'd limb from limb, the car
 Nor name nor shape retain'd.

But Jehu must not be forgot,
 Left flound'ring in the flood,
 With clothes all drench'd, and mouth and eyes
 Beplaster'd o'er with mud.

In piteous case he waded through
 And gain'd the slipp'ry side,
 Where grinning crowds were gather'd round
 To mock his fallen pride.

They led him to a neighbouring pump
 To clear his dismal face,
 Whence cold and heartless home he slunk,
 Involv'd in sore disgrace.

And many a bill for damage done
 His father had to pay.
 —Take warning, youthful drivers all!
 From Jehu's first essay.

WHY AN APPLE FALLS.

PAPA (said Lucy,) I have been reading to-day, that Sir Isaac Newton was led to make some of his great discoveries by seeing an apple fall from a tree. What was there extraordinary in that?

P. There was nothing extraordinary; but it happened to catch his attention, and set him a thinking.

L. And what did he think about?

A. He thought by what means the apple was brought to the ground.

L. Why I could have told him that—because the stalk gave way, and there was nothing to support it.

P. And what then?

L. Why then—it must fall, you know.

P. But why *must* it fall—that is the point.

L. Because it could not help it.

P. But why could it not help it?

L. I don't know—that is an odd question. Because there was nothing to keep it up.

P. Suppose there was not—does it follow that it must come to the ground?

L. Yes, surely!

P. Is an apple animate or inanimate?

L. Inanimate, to be sure!

P. And can inanimate things move of themselves?

L. No—I think not—but the apple falls because it is forced to fall.

P. Right! Some force out of itself acts upon it, otherwise it would remain for ever where it was, notwithstanding it were loosened from the tree.

L. Would it?

P. Undoubtedly! for there are only two ways in which it could be moved; by its own power of motion, or the power of somewhat else moving it. Now

the first you acknowledge it has not; the cause of its motion must therefore be the second. And what that is, was the subject of the philosopher's inquiry.

L. But every thing falls to the ground as well as an apple, when there is nothing to keep it up.

P. True—there must therefore be a universal cause of this tendency to fall.

L. And what is it?

P. Why, if things out of the earth cannot move themselves to it, there can be no other cause of their coming together than that the earth pulls them.

L. But the earth is no more animate than they are: so how can it pull?

P. Well objected! This will bring us to the point. Sir Isaac Newton after deep meditation, discovered, that there was a law in nature called *attraction*, by virtue of which every particle of matter, that is, every thing of which the world is composed, draws towards

it every other particle of matter, with a force proportioned to its size and distance. Lay two marbles on the table. They have a tendency to come together, and if there were nothing else in the world, they would come together, but they are also attracted by the table, by the ground, and by every thing besides in the room; and these different attractions pull against each other. Now, the globe of the earth is a prodigious mass of matter, to which nothing near it can bear any comparison. It draws, therefore, with mighty force, every thing within its reach, which is the cause of their falling: and this is called the *gravitation* of bodies, or what gives them *weight*. When I lift any thing, I act contrary to this force, for which reason it seems *heavy* to me, and the heavier, the more matter it contains, since that increases the attraction of the earth for it. Do you understand this?

L. I think I do. It is like a loadstone drawing a needle.

P. Yes—that is an attraction, but of a particular kind, only taking place between the magnet and iron. But gravitation, or the attraction of the earth, acts upon every thing alike.

L. Then it is pulling you and me at this moment?

P. It is.

L. But why do not we stick to the ground then?

P. Because, as we are alive, we have a power of self-motion, which can to a certain degree overcome the attraction of the earth. But the reason you cannot jump a mile high as well as a foot, is this attraction, which limits the force of your jump, and brings you down again after that force is spent.

L. I think then I begin to understand what I have heard of people living on the other side of the world. I be-

lieve they are called *Antipodes*, who have their feet turned towards ours, and their heads in the air. I used to wonder how it could be that they did not fall off; but I suppose the earth pulls them to it.

P. Very true. And whither should they fall? What have they over their heads?

L. I don't know; sky, I suppose.

P. They have. This earth is a vast ball, hung in the air, and continually spinning round, and that is the cause why the sun and stars seem to rise and set. At noon we have the sun over our heads, when the *Antipodes* have the stars over theirs; and at midnight the stars are over our heads, and the sun over theirs. So whither should they fall to more than we?—to the stars or the sun?

L. But we are up, and they are down.

P. What is up, but *from* the earth and *toward* the sky? Their feet touch the earth, and their heads point to the sky, as well as ours; and we are under their feet, as much as they are under ours. If a hole were dug quite through the earth, what would you see through it?

L. Sky, with the sun or the stars; and now I see the whole matter plainly. But pray what supports the earth in the air?

P. Why, whither should it go?

L. I don't know—I suppose where there was most to draw it. I have heard that the sun is a great many times bigger than the earth. Would it not go to that?

P. You have thought very justly on the matter, I perceive. But I shall take another opportunity of showing you how this is, and why the earth does not fall into the sun, of which, I confess, there

seems to be some danger. Meanwhile think how far the falling of an apple has carried us!

L. To the Antipodes, and I know not where.

P. You may see thence what use may be made of the commonest fact by a thinking mind.

NATURE AND EDUCATION.

A FABLE.

Nature and *Education* were one day walking together through a nursery of trees. "See," says *Nature*, "how straight and fine those firs grow—that is my doing! But as to those oaks, they are all crooked and stunted: that, my good sister, is your fault. You have planted them too close, and not pruned them properly." "Nay, sister," said *Education*, "I am sure I have taken all possible pains about them; but you gave

me bad acorns, so how should they ever make fine trees?"

The dispute grew warm; and at length, instead of blaming one another for negligence they began to boast of their own powers, and to challenge each other to a contest for the superiority. It was agreed that each should adopt a favourite, and rear it up in spite of the ill offices of her opponent. *Nature* fixed upon a vigorous young Weymouth Pine, the parent of which had grown to be the main-mast of a man of war. "Do what you will to this plant," said she to her sister, "I am resolved to push it up as straight as an arrow." *Education* took under her care a crab-tree. "This," said she, "I will rear to be at least as valuable as your pine."

Both went to work. While *Nature* was feeding her pine with plenty of wholesome juices, *Education* passed a strong rope round its top, and pulling it

downwards with all her force, fastened it to the trunk of a neighbouring oak. The pine laboured to ascend, but not being able to surmount the obstacle, it pushed out to one side, and presently became bent like a bow. Still, such was its vigour, that its top, after descending as low as its branches, made a new shoot upwards: but its beauty and usefulness were quite destroyed.

The crab-tree cost *Education* a world of pains. She pruned and pruned, and endeavoured to bring it into shape, but in vain. *Nature* thrust out a bough this way, and a knot that way, and would not push a single leading shoot upwards. The trunk was, indeed, kept tolerably straight by constant efforts; but the head grew awry and ill-fashioned, and made a scrubby figure. At length, *Education*, despairing of making a sightly plant of it, ingrafted the stock

with an apple, and brought it to bear tolerable fruit.

At the end of the experiment, the sisters met to compare their respective success. “Ah, sister!” (said *Nature*) “I see it is in your power to spoil the best of my works.” “Ah, sister!” (said *Education*) “it is a hard matter to contend against you—however, something may be done by taking pains enough.”

AVERSION SUBDUED.

A DRAMA.

SCENE—*A Road in the Country.**Arbury—Belford, walking.*

Belford. PRAY who is the present possessor of the Brookby estate?

Arbury. A man of the name of Goodwin.

B. Is he a good neighbour to you?

A. Far from it! and I wish he had settled a hundred miles off, rather than come here to spoil our neighbourhood.

B. I am sorry to hear that: but what is your objection to him?

A. O, there is nothing in which we agree. In the first place he is quite of the other side in politics; and that you know, is enough to prevent all intimacy.

B. I am not entirely of that opinion; but what else?

A. He is no sportsman, and refuses to join in our association for protecting the game. Neither does he choose to be a member of any of our clubs.

B. Has he been asked?

A. I don't know that he has directly; but he might easily propose himself, if he liked it. But he is of a close, unsociable temper, and I believe very niggardly.

B. How has he shown it?

A. His style of living is not equal to his fortune; and I have heard of several instances of his attention to petty economy.

B. Perhaps he spends his money in charity.

A. Not he, I dare say. It was but last week that a poor fellow who had lost his all by a fire, went to him with a subscription-paper, in which were the

names of all the gentlemen in the neighbourhood ; and all the answer he got was, that he would consider of it.

B. And did he consider ?

A. I don't know but I suppose it was only an excuse. Then his predecessor had a park well stocked with deer, and used to make liberal presents of venison to all his neighbours. But this frugal gentleman has sold them all off, and got a flock of sheep instead.

B. I don't see much harm in that, now mutton is so dear.

A. To be sure he has a right to do as he pleases with his park, but that is not the way to be beloved, you know. As to myself, I have reason to believe he bears me particular ill-will.

B. Then he is much in the wrong, for I believe you are as free from ill-will to others as any man living. But how has he shown it, pray ?

A. In twenty instances. He had a

horse upon sale the other day to which I took a liking, and bid money for it. As soon as he found I was about it, he sent it off to a fair on the other side of the county. My wife, you know, is passionately fond of cultivating flowers. Riding lately by his grounds, she observed something new, and took a great longing for a root or cutting of it. My gardener mentioned her wish to his (contrary, I own, to my inclination), and he told his master; but instead of obliging her, he charged the gardener on no account to touch the plant. A little while ago I turned off a man for saucy behaviour; but as he had lived many years with me, and was a very useful servant, I meant to take him again upon his submission, which I did not doubt would soon happen. Instead of that, he goes and offers himself to my civil neighbour, who, without deigning to apply to me even for a character, entertains him

immediately. In short, he has not the least of a gentleman about him, and I would give any thing to be well rid of him.

B. Nothing, to be sure, can be more unpleasant in the country, than a bad neighbour, and I am concerned it is your lot to have one. But there is a man who seems as if he wanted to speak with you. [*A countryman approaches.*]

A. Ah ! it is the poor fellow that was burnt out. Well, Richard, how go you on ?—what has the subscription produced you ?

Richard. Thank your honour, my losses are nearly all made up.

A. I am very glad of that ; but when I saw the paper last, it did not reach half way.

R. It did not, Sir ; but you may remember asking me what Mr. Goodwin had done for me, and I told you he took time to consider of it. Well, Sir—I

found that the very next day he had been at our town, and had made very particular inquiry about me and my losses among my neighbours. When I called upon him in a few days after, he told me he was very glad to find that I bore such a good character, and that the gentlemen round had so kindly taken up my case; and he would prevent the necessity of my going any further for relief. Upon which he gave me, God bless him! a draught upon his banker for fifty pounds.

A. Fifty pounds!

R. Yes, Sir—it has made me quite my own man again; and I am now going to purchase a new cart and team of horses.

A. A noble gift indeed; I could never have thought it. Well, Richard, I rejoice at your good fortune. I am sure you are much obliged to Mr. Goodwin.

R. Indeed I am, Sir, and to all my good friends. God bless you!

[*Goes on.*

B. Niggardliness, at least, is not this man's foible.

A. No—I was mistaken in that point. I wrong'd him, and I am sorry for it. But what a pity it is that men of real generosity should not be amiable in their manners, and as ready to oblige in trifles as in matters of consequence.

B. True—'tis a pity when that is really the case.

A. How much less an exertion it would have been, to have shown some civility about a horse or a flower-root!

B. A-propos of flowers!—there's your gardener carrying a large one in a pot.

Enter Gardener.

A. Now, James, what have you got there?

Gard. A flower, Sir, for Madam, from Mr. Goodwin's.

A. How did you come by it?

G. His gardener, Sir, sent me word to come for it. We should have had it before, but Mr. Goodwin thought it would not move safely.

A. I hope he has got more of them.

G. He has only a seedling plant or two, Sir; but hearing that Madam took a liking to it, he was resolved to send it her, and a choice thing it is! I have a note for Madam in my pocket.

A. Well, go on. [*Exit Gardener.*]

B. Methinks this does not look like deficiency in civility.

A. No—it is a very polite action—I can't deny it, and I am obliged to him for it. Perhaps, indeed, he may feel he owes me a little amends.

B. Possibly—It shows he *can* feel, however.

A. It does. Ha! there's Yorkshire Tom coming with a string of horses

from the fair. I'll step up and speak to him, Now Tom! how have horses gone at Market-hill.

Tom. Dear enough your honour!

A. How much more did you get for Mr. Goodwin's mare than I offered him?

T. Ah! Sir, that was not a thing for your riding, and that Mr. Goodwin well knew. You never saw such a vicious toad. She had liked to have killed the groom two or three times. So I was ordered to offer her to the mail-coach people, and get what I could from them. I might have sold her better if Mr. Goodwin would have let me, for she was a fine creature to look at as need be, and quite sound.

A. And was that the true reason Tom, why the mare was not sold to me?

T. It was indeed, Sir.

A. Then I am highly obliged to Mr. Goodwin. (*Tom rides on.*) This was handsome behaviour indeed.

B. Yes, I think it was somewhat more than politeness—it was real goodness of heart.

A. It was. I find I must alter my opinion of him, and I do it with pleasure. But after all, his conduct with respect to my servant is somewhat unaccountable.

B. I see reason to think so well of him in the main, that I am inclined to hope he will be acquitted in this matter too.

A. There the fellow is. I wonder he has my old livery on yet.

[*Ned approaches, pulling off his hat.*]

N. Sir, I was coming to your honour.

A. What can you have to say to me now, Ned?

N. To ask pardon, Sir, for my misbehaviour, and beg you to take me again.

A. What—have you so soon parted with your new master?

N. Mr. Goodwin never was my mas-

ter, Sir. He only kept me in his house till I could make it up with you again; for he said he was sure you were too honourable a gentleman to turn off an old servant without good reason, and he hoped you would admit my excuses after your anger was over.

A. Did he say all that?

N. Yes, Sir; and he advised me not to delay any longer to ask your pardon.

A. Well—go to my house, and I will talk with you on my return.

B. Now, my friend, what think you of this?

A. I think more than I can well express. It will be a lesson to me never to make hasty judgments again.

B. Why, indeed, to have concluded that such a man had nothing of the gentleman about him, must have been rather hasty.

A. I acknowledge it. But it is the misfortune of these reserved characters

that they are so long in making themselves known; though when they are known they often prove the most truly estimable. I am afraid even now, that I must be content with esteeming him at a distance.

B. Why so?

A. You know I am of an open sociable disposition.

B. Perhaps he is so too.

A. If he was, surely we should have been better acquainted before this time.

B. It may have been prejudice rather than temper, that's kept you apart.

A. Possibly so. The vile spirit of party has such a sway in the country, that men of the most liberal dispositions can hardly free themselves from its influence. It poisons all the kindness of society; and yonder comes an instance of its pernicious effects.

B. Who is he?

A. A poor schoolmaster with a large

family in the next market-town, who has lost all his scholars by his activity on our side in the last election. I heartily wish it was in my power to do something for him; for he is a very honest man, though perhaps rather too warm.

[The schoolmaster comes up.]

Now Mr. Penman, how go things with you?

P. I thank you, Sir, they have gone poorly enough, but I hope they are in a way to mend.

A. I am glad to hear it—but how?

P. Why, Sir, the free school of Stoke is vacant, and I believe I am likely to get it.

A. Aye?—I wonder at that. I thought it was in the hands of the other party.

P. It is, Sir; but Mr. Goodwin has been so kind as to give me a recommendation, and his interest is sufficient to carry it.

A. Mr. Goodwin! you surprise me!

P. I was much surprised, too, Sir. He sent for me of his own accord (for I should never have thought of asking *him* a favour), and told me he was sorry a man should be injured in his profession on account of party, and as I could not live comfortably where I was, he would try to settle me in a better place. So he mentioned the vacancy of Stoke, and offered me letters to the trustees. I was never so affected in my life, Sir; I could hardly speak to return him thanks. He kept me to dinner, and treated me with the greatest respect. Indeed I believe there is not a kinder man breathing than Mr. Goodwin.

A. You have the best reason in the world to say so, Mr. Penman. What—did he converse familiarly with you?

P. Quite so, Sir. We talked a great deal about party affairs in this neighbourhood, and he lamented much

that differences of this kind should keep worthy men at a distance from each other. I took the liberty, Sir, of mentioning your name. He said he had not the honour of being acquainted with you, but he had a sincere esteem for your character, and should be glad of any occasion to cultivate a friendship with you. For my part, I confess to my shame, I did not think there could have been such a man on that side.

A. Well—good morning!

P. Your most obedient, Sir.

[He goes.]

A. (*After some silence*) Come, my friend, let us go.

B. Whither?

A. Can you doubt it?—to Mr. Goodwin's to be sure! After all I have heard, can I exist a moment without acknowledging the injustice I have done him, and begging his friendship?

B. I shall be happy, I am sure, to accompany you on that errand. But who is to introduce us?

A. O, what are form and ceremony in a case like this! Come—come.

B. Most willingly. [*Exeunt.*

EIGHTEENTH EVENING.

THE LITTLE PHILOSOPHER.

MR. L. was one morning riding by himself, when dismounting to gather a plant in the hedge, his horse got loose and galloped away before him. He followed, calling the horse by his name, which stopped, but on his approach set off again. At length a little boy in a neighbouring field, seeing the affair, ran across where the road made a turn, and getting before the horse, took him by the bridle, and held him till his owner came up. Mr. L. looked at the boy and admired his ruddy cheerful count-

tenance. Thank you, my good lad! (said he) you have caught my horse very cleverly. What shall I give you for your trouble? (putting his hand into his pocket.)

I want nothing, Sir, said the boy.

Mr. L. Don't you? so much the better for you. Few men can say as much. But pray what are you doing in the field?

B. I was rooting up weeds, and tending the sheep that are feeding on the turnips.

Mr. L. And do you like this employment?

B. Yes, very well, this fine weather.

Mr. L. But had you not rather play?

B. This is not hard work; it is almost as good as play.

Mr. L. who set you to work?

B. My daddy, Sir.

Mr. L. Where does he live?

B. Just by, among the trees there.

Mr. L. What is his name?

B. Thomas Hurdle.

Mr. L. And what is yours?

B. Peter, Sir.

Mr. L. How old are you?

B. I shall be eight at Michaelmas.

Mr. L. How long have you been out in this field.

B. Ever since six in the morning.

Mr. L. And are not you hungry?

B. Yes—I shall go to my dinner soon.

Mr. L. If you had sixpence now, what would you do with it.

B. I don't know. I never had so much in my life.

Mr. L. Have you no playthings?

B. Playthings? what are those?

Mr. L. Such as balls, nine-pins, marbles, tops, and wooden horses.

B. No, Sir; but our Tom makes footballs to kick in the cold weather, and we set traps for birds; and then I have a jumping pole and a pair of stilts to walk

through the dirt with; and I had a hoop, but it is broke.

Mr. L. And do you want nothing else?

B. No. I have hardly time for those; for I always ride the horses to field, and bring up the cows, and run to the town of errands, and that is as good as play you know.

Mr. L. Well, but you could buy apples or gingerbread at the town, I suppose, if you had money.

B. O—I can get apples at home; and as for gingerbread, I don't mind it much, for my mammy gives me a pie now and then, and that is as good.

Mr. L. Would you not like a knife to cut sticks?

B. I have one—here it is—brother Tom gave it me.

Mr. L. Your shoes are full of holes—don't you want a better pair?

B. I have a better pair for Sundays.

Mr. L. But these let in water.

B. O, I don't care for that.

Mr. L. Your hat is all torn, too.

B. I have a better at home, but I had as lieve have none at all, for it hurts my head.

Mr. L. What do you do when it rains ?

B. If it rains very hard, I get under the hedge till it is over.

Mr. L. What do you do when you are hungry before it is time to go home ?

B. I sometimes eat a raw turnip.

Mr. L. But if there are none ?

B. Then I do as well as I can ; I work on, and never think of it.

Mr. L. Are you not dry sometimes this hot weather ?

B. Yes, but there is water enough.

Mr. L. Why, my little fellow, you are quite a philosopher.

B. Sir ?

Mr. L. I say you are a philosopher,

but I am sure you do not know what that means.

B. No, Sir, no harm, I hope.

Mr. L. No, no! (*laughing.*) Well, my boy, you seem to want nothing at all, so I shall not give you money to make you want any thing. But were you ever at school?

B. No, Sir, but daddy says I shall go after harvest.

Mr. L. You will want books then.

B. Yes, the boys have all a Spelling-book and a Testament.

Mr. L. Well, then, I will give you them—tell your daddy so, and that it is because I think you a very good contented little boy. So now go to your sheep again.

B. I will, Sir. Thank you.

Mr. L. Good bye, Peter.

B. Good bye, Sir.

WHAT ANIMALS ARE MADE FOR.

PRAY, Papa, (said *Sophia* after she had been a long while teased with the flies that buzzed about her ears, and settled on her nose and forehead as she sat at work)—Pray what were flies made for?

“For some good, I dare say,” (replied her Papa.)

S. But I think they do a great deal more harm than good, for I am sure they plague me sadly; and in the kitchen they are so troublesome, that the maids can hardly do their work for them.

P. Flies eat up many things that would otherwise corrupt and become loathsome; and they serve for food to birds, spiders, and many other animals.

S. But we could clean away every

thing that was offensive without their help; and as to their serving for food, I have seen whole heaps of them lying dead in a window, without seeming to have done good to any thing.

P. Well, then. Suppose a fly capable of thinking; would he not be equally puzzled to find out what men were good for? This great two-legged monster, he might say, instead of helping us to live, devours more food at a meal than would serve a whole legion of flies. Then he kills us by hundreds when we come within his reach, and I see him destroy and torment all other animals too. And when he dies he is nailed up in a box, and put a great way under ground, as if he grudged doing any more good after his death, than when alive. Now what would you answer to such a reasoning fly?

S. I would tell him he was very impertinent for talking so of his betters;

for that he and all other creatures were made for the use of man, and not man for theirs.

P. But would you tell him true? You have just been saying that you could not find out of what use flies were to us: whereas, when they suck our blood, there is no doubt that we are of use to them.

S. It is that which puzzles me.

P. There are many other animals which we call *noxious*, and which are so far from being useful to us, that we take all possible pains to get rid of them. More than that, there are vast tracts of the earth where few or no men inhabit, which are yet full of beasts, birds, insects, and all living things. These certainly do not exist there for his use alone. On the contrary, they often keep man away.

S. Then what are they made for?

P. They are made to be happy. It

is a manifest purpose of the Creator to give being to as much life as possible, for life is enjoyment to all creatures in health and in possession of their faculties. Man surpasses other animals in his powers of enjoyment, and he has prospects in a future state which they do not share with him. But the Creator equally desires the happiness of all his creatures, and looks down with as much benignity upon these flies that are sporting around us, as upon ourselves.

S. Then we ought not to kill them, if they are ever so troublesome.

P. I do not say that. We have a right to make a reasonable use of all animals for our advantage, and also to free ourselves from such as are hurtful to us. So far our superiority over them may fairly extend. But we should never abuse them for our mere amusement, nor take away their lives wantonly. Nay a good-natured man will rather undergo a *little*

inconvenience, than take away from a creature all that it possesses. An infant may destroy life, but all the kings upon earth cannot restore it. I remember reading of a good-tempered old gentleman that having been a long time plagued with a great fly that buzzed about his face all dinner time, at length, after many efforts, caught it. Instead of crushing it to death, he held it carefully in his hand, and opening the window, "Go, (said he)—get thee gone, poor creature; I won't hurt a hair of thy head; surely the world is wide enough for thee and me."

S. I should have loved that man.

P. One of our poets has written some very pretty lines to a fly that came to partake with him of his wine. They begin,

Busy, curious, thirsty fly,
 Drink with me, and drink as I;
 Welcome freely to my cup,
 Could'st thou sip and sip it up.

S. How pretty ! I think they will almost make me love flies. But pray, Papa, do not animals destroy one another ?

P. They do indeed. The greatest part of them only live by the destruction of life. There is a perpetual warfare going on, in which the stronger prey upon the weaker, and, in their turns, are the prey of those which are a degree stronger than themselves. Even the innocent sheep, with every mouthful of grass, destroys hundreds of small insects. In the air we breathe, and the water we drink, we give death to thousands of invisible creatures.

S. But is not that very strange ? If they were created to live and be happy, why should they be destroyed so fast ?

P. They are destroyed no faster than others are produced ; and if they enjoyed life while it lasted, they have had a good bargain. By making animals the food of animals, Providence has

filled up every chink, as it were, of existence. You see these swarms of flies. During all the hot weather they are continually coming forth from the state of eggs and maggots, and as soon as they get the use of wings, they roam about and fill every place in search of food. Meantime they are giving sustenance to the whole race of spiders; they maintain all the swallow tribe, and contribute greatly to the support of many other small birds; and even afford many a delicate morsel to the fishes. Their own numbers, however, seem scarcely diminished, and vast multitudes live on till the cold weather comes and puts an end to them. Were nothing to touch them, they would probably become so numerous as to starve each other. As it is, they are full of enjoyment themselves, and afford life and enjoyment to other creatures, which in their turn supply the wants of others.

S. It is no charity then, to tear a

x- spider's web in pieces in order to set the
es, fly at liberty.

n- *P.* None at all—no more than it
of would be to demolish the traps of a poor
ey Indian hunter who depended upon
out them for his dinner. They both act as
od. nature directs them. Shall I tell you a
nce story?

in- *S.* O yes—pray do.

ute *P.* As a venerable Bramin, who had
nal never in his days eaten any thing but rice,
ate fruits, and milk, and held it the greatest
um of crimes to shed the blood of any
ned thing that had life, was one day medi-
cold ating on the banks of the Ganges, he
em saw a little bird on the ground picking
ould up ants as fast as he could swallow.
s to Murderous wretch, cried he, what scores
ful of lives are sacrificed to one gluttonous
life meal of thine! Presently a sparrow-
hich hawk, pouncing down, seized him in his
ers claws and flew off with him. The Bra-
ar min was at first inclined to triumph over

the little bird ; but on hearing his cries, he could not help pitying him. “ Poor thing,” said he, “ thou art fallen into the clutches of a tyrant !” A stronger tyrant, however, took up the matter ; for a falcon in mid air darting on the sparrow-hawk, struck him to the ground, with the bird lifeless in his talons. Tyrant against tyrant, thought the Bramin is well enough. The falcon had not finished tearing his prey, when a lynx stealing from behind a rock on which he was perched, sprung upon him, and having strangled him, bore him to the edge of a neighbouring thicket, and began to suck his blood. The Bramin was attentively viewing this new display of retributive justice, when a sudden roar shook the air, and a huge tiger rushing from the thicket, came like thunder on the lynx. The Bramin was near enough to hear the crashing bones, and was making off in great terror.

when he met an English soldier armed with his musket. He pointed eagerly to the place where the tiger was making his bloody repast. The soldier levelled his gun, and laid the tiger dead. "Brave fellow!" exclaimed the Bramin. "I am very hungry," said the soldier, "can you give me a beef steak? I see you have plenty of cows here." "Horrible!" cried the Bramin; "what! I kill the sacred cows of Brama!" "Then kill the next tiger yourself," said the soldier.

TRUE HEROISM.

YOU have read, my Edmund, the stories of Achilles, and Alexander, and Charles of Sweden, and have, I doubt not, admired the high courage which seemed to set them above all sensations of fear, and rendered them capable of the most extraordinary actions. The

world called these men *heroes* ; but before we give them that noble appellation, let us consider what were the motives which animated them to act and suffer as they did.

The first was a ferocious savage, governed by the passions of anger and revenge, in gratifying which he disregarded all impulses of duty and humanity. The second was intoxicated with the love of glory—swoln with absurd pride—and enslaved by dissolute pleasures ; and in pursuit of these objects he reckoned the blood of millions as of no account. The third was unfeeling, obstinate and tyrannical, and preferred ruining his country, and sacrificing all his faithful followers, to the humiliation of giving up any of his mad projects. *Self*, you see, was the spring of all their conduct ; and a selfish man can never be a hero. I will give you two examples of genuine heroism, one shown in

acting, the other in suffering; and these shall be *true stories*, which is perhaps more than can be said of half that is recorded of Achilles and Alexander.

You have probably heard something of Mr. Howard, the reformer of prisons, to whom a monument is erected in St. Paul's church. His whole life almost was heroism; for he confronted all sorts of dangers with the sole view of relieving the miseries of his fellow-creatures. When he began to examine the state of prisons, scarcely any in the country were free from a very fatal and infectious distemper called the gaol fever. Wherever he heard of it, he made a point of seeing the poor sufferers, and often went down into their dungeons, when the keepers themselves would not accompany him. He travelled several times over almost the whole of Europe, and even into Asia, in order to gain knowledge of the state of prisons and hospitals, and point

out means for lessening the calamities that prevail in them. He even went into countries where the plague was, that he might learn the best methods of treating that terrible contagious disease ; and he voluntarily exposed himself to perform a strict quarantine, as one suspected of having the infection of the plague, only that he might be thoroughly acquainted with the methods used for prevention. He at length died of a fever caught in attending on the sick on the borders of Crim Tartary, honoured and admired by all Europe, after having greatly contributed to enlighten his own and many other countries with respect to some of the most important objects of humanity. Such was *Howard the Good* ; as great a hero in preserving mankind, as some of the false heroes above mentioned were in destroying them.

My second hero is a much humbler, but not less genuine one.

There was a journeyman bricklayer in this town—an able workman, but a very drunken idle fellow, who spent at the alehouse almost all he earned, and left his wife and children to shift for themselves as they could. This is, unfortunately, a common case; and of all the tyranny and cruelty exercised in the world, I believe that of bad husbands and fathers is by much the most frequent and the worst.

The family might have starved, but for his eldest son, whom from a child the father brought up to help him in his work; and who was so industrious and attentive, that being now at the age of thirteen or fourteen, he was able to earn pretty good wages, every farthing of which, that he could keep out of his father's hands, he brought to his mother. And when his brute of a father came home drunk, cursing and swearing, and in such an ill humour, that

his mother and the rest of the children durst not come near him for fear of a beating, this good lad (*Tom* was his name) kept near him, to pacify him, and get him quietly to bed. His mother, therefore, justly looked upon *Tom* as the support of the family, and loved him dearly.

It chanced that one day *Tom*, in climbing up a high ladder with a load of mortar on his head, missed his hold, and fell down to the bottom on a heap of bricks and rubbish. The by-standers ran up to him, and found him all bloody, and with his thigh broken and bent quite under him. They raised him up, and sprinkled water on his face to recover him from a swoon into which he had fallen. As soon as he could speak, looking round, with a lamentable tone he cried, "O, what will become of my poor mother!"

He was carried home, I was present

while the surgeon set his thigh. His mother was hanging over him half distracted: "Don't cry, mother! (said he) I shall get well again in time." Not a word more, or a groan, escaped him while the operation lasted.

Tom was a ragged boy that could not read or write—yet *Tom* has always stood on my list of heroes.

NINETEENTH EVENING.

ON METALS.

PART I.

George and *Harry*, with their Tutor, one day in their walk were driven by the rain to take shelter in a blacksmith's shed; and the shower lasting some time, the boys, in order to amuse themselves, began to examine the things around them. The great bellows first attracted their notice, and they admired the roaring it made, and the expedition with

which it raised the fire to a heat too intense for them to look at. They were surprised at the dexterity with which the smith fashioned a bar of iron into a horse-shoe; first beating it, then hammering it well on the anvil, cutting off a proper length, bending it round, turning up the ends, and lastly, punching the nail-holes. They watched the whole process of fitting it to the horse's foot, and fastening it on; and it had become fair some minutes before they showed a desire to leave the shop and proceed on their walk.

“ I should never have thought” (says *George*, beginning the conversation), “ that such a hard thing as iron could have been so easily managed.”

“ Nor I neither,” said *Harry*.

Tut. It was managed, you saw, by the help of fire. The fire made it soft and flexible, so that the smith could easily hammer it, and cut it, and bend it to

the shape he wanted ; and then dipping it in the water, made it hard again.

G. Are all other metals managed in the same manner ?

T. They are all worked by the help of fire in some way or other, either in melting them, or making them soft.

G. There are a good many sorts of metals, are there not ?

T. Yes, several ; and if you have a mind I will tell you about them, and their uses.

G. Pray do, Sir.

H. Yes ; I should like to hear it of all things.

T. Well then. First let us consider what a metal is. Do you think you should know one from a stone ?

G. A stone !—Yes, I could not mistake a piece of lead or iron for a stone.

T. How would you distinguish it ?

G. A metal is bright and shining.

T. True—brilliance is one of their qualities. But glass and crystal are very bright, too.

H. But one may see through glass and not through a piece of metal.

T. Right. Metals are brilliant, but opaque, or not transparent. The thinnest plate of metal that can be made will keep out the light as effectually as a stone wall.

G. Metals are very heavy too.

T. True. They are the heaviest bodies in nature; for the lightest metal is nearly twice as heavy as the heaviest stone. Well, what else?

G. Why, they will bear beating with a hammer, which a stone would not without flying in pieces.

T. Yes: that property of extending or spreading under the hammer is called *malleability*; and another, like it, that of bearing to be drawn out into

wire, which is called *ductility*. Metals have both these, and much of their use depends upon them.

G. Metals will melt too.

H. What! will iron melt?

T. Yes; all metals will melt, though some require greater heat than others. The property of melting is called *fusibility*. Do you know any thing more about them?

G. No; except that they come out of the ground, I believe.

T. That is properly added, for it is this circumstance which makes them rank among *fossils*, or minerals. To sum up their character, then, a metal is brilliant, opaque, heavy, malleable, ductile, and fusible mineral.

G. I think I can hardly remember all that.

T. The *names* may slip your memory, you cannot see metals at all used, without being sensible of the *things*.

G. But what are *ores*? I remember seeing a heap of iron ore which men were breaking with hammers, and it looked only like stones.

T. The *ore* of a metal is the state in which it is generally met with in the earth, when it is so mixed with stone and other matters, as not to show its proper qualities as a metal.

H. How do people know it, then?

T. By experience. It was probably accident that in the early ages discovered that certain fossils by the force of fire might be made to yield a metal. This experiment was repeated on other fossils so that in length of time all the different metals were found out, and all the different forms in which they lie concealed in the ground. The knowledge of this is called *Mineralogy*, and a very important science it is.

G. Yes, I suppose so; for metals are very valuable things. Our next neighbour

bour, Mr. Stirling, I have heard, gets a great deal of money every year from his mines in Wales.

T. He does. The mineral riches of some countries are much superior to that of their products above ground, and the revenues of many kings are in great part derived from their mines.

H. I suppose they must be gold and silver mines.

T. Those, to be sure, are the most valuable, if the metals are found in tolerable abundance. But do you know why they are so?

H. Because money is made of gold and silver.

T. That is a principal reason, no doubt. But these metals have intrinsic properties that make them highly valuable, else probably they would not have been chosen in so many countries to make money of. In the first place, gold and silver are both *perfect metals*, that

is, indestructible in the fire. Other metals, if kept a considerable time in the fire, change by degrees into an earthy scaly matter, called a calx. You have melted lead, I dare say.

G. Yes, often.

T. Have you not, then, perceived a drossy film collect upon its surface after it had been kept melting a while?

G. Yes.

T. That is a calx; and in time the whole lead would change to such a substance. You may see, too, when you have heated the poker red-hot, some scales separate from it, which are brittle.

H. Yes, the kitchen poker is almost burnt away by putting into the fire.

T. Well—all metals undergo these changes, except gold and silver; but these, if kept ever so long in the hottest fire, sustain no loss or change. They are therefore called *perfect metals*. Gold

has several other remarkable properties. It is the heaviest of all metals.

H. What, is it heavier than lead?

T. Yes—about half as heavy again. It is between nineteen and twenty times as heavy as an equal bulk of water. This great weight is a ready means of discovering counterfeit gold coin from genuine; for as gold must be adulterated with something much lighter than itself, a false coin, if of the same weight with the true, will be sensibly bigger. Gold, too, is the most ductile of all metals. You have seen leaf-gold?

G. Yes; I bought a book of it once.

T. Leaf-gold is made by beating a plate of gold placed between pieces of skin, with heavy hammers, till it is spread out to the utmost degree of thinness. And so great is its capacity for being extended, that a single grain of the metal, which would be scarce

bigger than a large pin's head, is beaten out to a surface of fifty square inches.

G. That is wonderful indeed! but I know leaf-gold must be very thin, for it will almost float upon the air.

T. By drawing gold out to a wire, it may be still further extended. Gold wire, as it is called, is made with silver overlaid with a small proportion of gold, and they are drawn out together. In the wire commonly used for laces, and embroidery, and the like, a grain of gold is made completely to cover a length of three hundred and fifty-two feet; and when it is stretched still farther by flattening, it will reach four hundred and one feet.

G. Prodigious! What a vast way a guinea might be drawn out then!

T. Yes, the gold of a guinea at that rate would reach above nine miles and a half. This property in gold of being

capable of extension to so extraordinary a degree is owing to its great tenacity or cohesion of particles, which is such, that you can scarcely break a piece of gold wire by twisting it.

H. Then it would make very good wire for hanging bells.

T. It would; but such bell-hanging would come rather too dear. Another valuable quality of gold is its fine colour. You know scarce any thing makes a more splendid appearance than gilding. And a peculiar advantage of it is, that gold is not liable to rust or tarnish as other metals are. It will keep its colour fresh for a great many years in a pure and clear air.

H. I remember the vane of the church-steeple was new gilt two years ago, and it looks as well as at first.

T. This property of not rusting would render gold very useful for a variety of purposes, if it were more common. It

would make excellent cooking utensils, water pipes, mathematical instruments, clock-work, and the like.

G. But is not gold soft? I have seen pieces of gold bent double.

T. Yes; it is next in softness to lead, and, therefore, when it is made into coin, or used for any common purposes, it is mixed with a small proportion of some other metal, in order to harden it. This is called its *alloy*. Our gold coin has one twelfth part of alloy, which is copper.

G. How beautiful new gold coin is!

T. Yes—scarce any metal takes a stamp or impression better; and it is capable of a very fine polish.

G. What countries yield the most gold?

T. South America, the East Indies and the coast of Africa. Europe affords but little; yet a moderate quantity is got every year from Hungary.

G. I have heard of rivers rolling sands of gold. Is there any truth in that?

T. The poets, as usual, have greatly exaggerated the matter; however, there are various streams in different parts of the world, the sands of which contain particles of gold, and some of them in such quantity as to be worth the search.

H. How does the gold come there?

T. It is washed down along with the soil from mountains by the torrents, which are the sources of rivers. Some persons say that all sands contain gold; but I would not advise you to take the pains to search for it in our common sand: for in more senses than one, *gold may be bought too dear.*

H. But what a fine thing it would be to find a gold mine on one's estate!

T. Perhaps not so fine as you may imagine, for many a one does not pay the cost of working. A coal-pit would

probably be a better thing. Who do you think are the greatest gold-finders in Europe?

H. I don't know.

T. The gypsies in Hungary. A number of half-starved, half-naked wretches of that community employ themselves in washing and picking the sands of some mountain-streams in that country which contain gold, from which they obtain just profit enough to keep body and soul together! whereas, did they employ themselves in agriculture or manufactures, they might have got a comfortable subsistence. Gold almost all the world over is first got by slaves, and it makes slaves of those who possess much of it.

G. For my part, I will be content with a silver mine.

H. But we have none of those in England, have we?

T. We have no silver mines, properly

so called, but silver is procured in some of our lead mines. There are, however, valuable silver mines in various parts of Europe; but the richest of all are in Peru in South America.

G. Are not the famous mines of Potosi there?

T. They are. Shall I now tell you some of the properties of silver?

G. By all means.

T. It is another *perfect* metal. It is also as little liable to rust as gold, though indeed it readily gets tarnished.

H. Yes; I know our footman is often obliged to clean our plate before it is used.

T. Plate, however, is not made of pure silver, any more than silver coin, and silver utensils of all kinds. Copper is mixed with it, as with gold, to harden it; and that makes it more liable to tarnish.

G. Bright silver, I think, is almost as beautiful as gold.

T. It is the most beautiful of the white metals, and is capable of a very fine polish; and this, together with its rarity, makes it used for a great variety of ornamental purposes. Then it is nearly as ductile and malleable as gold.

G. I have had silver-leaf, and it seemed as thin as gold-leaf.

T. It is nearly so. That is used for silvering, as gold-leaf is for gilding. It is common, too, to cover metals with a thin coating of silver, which is called plating.

H. The child's saucepan is silvered over on the inside. What is that for?

T. To prevent the victuals from getting any taint from the metal of the saucepan; for silver is not capable of being corroded or dissolved by any of the liquids used for food, as iron and copper are.

H. And that is the reason I suppose that fruit-knives are made of silver.

T. It is; but the softness of the metal makes them bear a very poor edge.

G. Does silver melt easily?

T. Silver and gold both melt more difficultly than lead; not till they are above a common red heat. As to the weight of silver, it is nearly one half less than that of gold, being only eleven times as heavy as water.

H. Is quicksilver a kind of silver?

T. It takes its name from silver, being very like it in colour; but in reality it is a very different thing, and one of the most singular of the metal kind.

G. It is not *malleable*, I am sure.

T. No; not when it is quick or fluid, as it always is in our climate. But a very great degree of cold makes it solid, and then it is malleable like other metals.

G. I have heard of *killing* quicksilver; pray what does that mean?

T. It means destroying its property of running about, by mixing it with somewhat else. Thus if quicksilver be well rubbed with fat, or oil, or gum, it unites with them, losing all its metallic appearance or fluidity. It also unites readily with gold and silver and several other metals, into a kind of shining paste, which is called an *amalgam*. This is one of the ways of gilding or silvering a thing. Your buttons are gilt by means of an amalgam.

G. How is that done?

T. The shells of the buttons, which are made of copper, are shaken in a hat with a lump of amalgam of gold and quicksilver, till they are all covered over with it. They are then put into a sort of frying-pan, and held over the fire. The quicksilver, being very volatile in its nature, flies off in the form of a smoke or vapour when it is heated, leaving the gold behind it spread over the surface

of the button. Thus many dozens are gilt at once with the greatest ease.

G. What a clever way ! I should like vastly to see it done.

T. You may see it any day at Birmingham, if you happen to be there ; as well as a great many other curious operations on metals.

G. What a weight quicksilver is ! I remember taking up a bottle full of it, and I had liked to have dropped it again, it was so much heavier than I expected.

T. Yes, it is one of the heaviest of the metals—about fifteen times as heavy as water.

G. Is not *mercury* a name for quicksilver ? I have heard them talk of the mercury rising and falling in the weather-glass.

T. It is. You, perhaps, may have heard too of *mercurial medicines*, which are those made of quicksilver prepared in one manner or another.

G. What are they good for?

T. For a great variety of complaints. Your brother took some lately for the worms; and they are often given for breakings out on the skin, and for sores and swellings. But they have one remarkable effect, when taken in a considerable quantity, which is to loosen the teeth, and cause a great spitting. This is called salivation.

H. I used to think quicksilver was poison.

T. When it is in its common state of running quicksilver, it generally does neither good nor harm: but it may be prepared, so as to be a very violent medicine, or even a poison.

G. Is it useful for any thing else?

T. Yes—for a variety of purposes in the arts, which I cannot now very well explain to you. But you will perhaps be surprised to hear that one of the

finest red paints is made from quicksilver.

G. A red paint!—which is that?

T. Vermillion, or cinnabar, which is a particular mixture of sulphur with quicksilver.

H. Is quicksilver found in this country?

T. No. The greatest quantity comes from Spain, Istria, and South America. It is a considerable object of commerce, and bears a high value, though much inferior to silver. Well—so much for metals at present. We will talk of the rest on some future opportunity.

FLYING AND SWIMMING.

How I wish I could fly! (cried Robert, as he was gazing after his pigeons that were exercising themselves in a morning's flight.) How fine it must be

to soar to such a height, and to dash through the air with so swift a motion.

I doubt not (said his father) that the pigeons have great pleasure in it ; but we have our pleasures too ; and it is idle to indulge longings for things quite out of our power.

R. But do you think it impossible for men to learn to fly ?

F. I do—for I see they are not furnished by nature with organs requisite for the purpose.

R. Might not artificial wings be contrived, such as Dædalus is said to have used ?

F. Possibly they might ; but the difficulty would be to put them in motion.

R. Why could not a man move them if they were fastened to his shoulders, as well as a bird ?

F. Because he has got arms to move which the bird has not. The same on

gans which in quadrupeds are employed to move the fore legs, and in man, the arms, are used by birds in the motion of the wings. Nay, the muscles or bundles of flesh, that move the wings, are proportionally much larger and stronger than those bestowed upon our arms; so that it is impossible, formed as we are, that we should use wings, were they made and fastened on with ever so much art.

R. But angels, and cupids, and such things are painted with wings; and I think they look very natural.

F. To you they may appear so; but an anatomist sees them at once to be monsters, which could not really exist.

R. God might have created winged men, however, if he had pleased.

F. No doubt; but they could not have had the same shape that men have now. They would have been different

creatures, such as it was not in his plan to make. But you that long to fly—consider if you have made use of all the faculties already given you! You want to subdue the element of air—what can you do with that of water? Can you swim?

R. No, not yet.

F. Your companion Johnson, I think, can swim very well.

R. Yes.

F. Reflect, then, on the difference betwixt him and you. A boat oversets with you both in a deep stream. You plump at once to the bottom, and infallibly lose your life. He rises like a cork darts away with the greatest ease, and reaches the side in perfect safety. Both of you, pursued by a bull, come to the side of a river. He jumps in and crosses it. You are drowned if you attempt it and tossed by the bull if you do not. What an advantage he has over you.

Yet you are furnished with exactly the same bodily powers that he is. How is this?

R. Because he has been taught, and I have not.

F. True, but it is an easy thing to learn, and requires no other instruction than boys can give one another when they bathe together: so that I wonder any body should neglect to acquire an art at once agreeable and useful. The Romans used to say, by way of proverb, of a blockhead, "He can neither read nor swim." You may remember how Cæsar was saved at Alexandria by throwing himself into the sea, and swimming with one hand, while he held up his Commentaries with the other.

R. I should like very well to swim, and I have often tried, but I always pop under water, and that daunts me.

F. And it is that fear which prevents you from succeeding,

R. But is it as natural for man to swim as for other creatures? I have heard that the young of all other animals swim the first time they are thrown into the water.

F. They do—they are without fear. In our climate the water is generally cold, and is early made an object of terror. But in the hot countries where bathing is one of the greatest of pleasures, young children swim so early and well, that I should suppose they take to it almost naturally.

R. I am resolved to learn, and I will ask Johnson to take me with him to the river.

F. Do; but let him find you a safe place to begin at. I don't want you, however, to proceed so cautiously as Sir Nicholas Gimcrack did.

R. How was that?

F. He spread himself out on a large table, and placing before him a basin of

water with a frog in it, he struck with his arms and legs as he observed the animal do.

R. And did that teach him ?

F. Yes—to swim on dry land ; but he never ventured himself in the water.

R. Shall I get corks or bladders ?

F. No ; learn to depend on your own powers. It is a good lesson in other things, as well as in swimming. Learning to swim with corks, is like learning to construe Latin with a translation on the other side. It saves some pains at first, but the business is not done half so effectually.

THE FEMALE CHOICE.

A TALE.

A YOUNG girl, having fatigued herself one hot day with running about the garden, sat herself down in a pleasant harbour, where she presently fell asleep.

During her slumber, two female figures presented themselves before her. One was loosely habited in a thin robe of pink with light green trimmings. Her sash of silver gauze flowed to the ground. Her fair hair fell in ringlets down her neck; and her head-dress consisted of artificial flowers interwoven with feathers. She held in one hand a ball ticket, and in the other a fancy-dress all covered with spangles and knots of gay ribband. She advanced smiling to the girl, and with a familiar air thus addressed her :

“ My dearest Melissa, I am a kind genius, who have watched you from your birth, and have joyfully beheld all your beauties expand, till at length they have rendered you a companion worthy of me. See what I have brought you. This dress and this ticket will give you free access to all the ravishing delights of my palace. With me you will pass

your days in a perpetual round of ever-varying amusements. Like the gay butterfly, you will have no other business than to flutter from flower to flower, and spread your charms before admiring spectators. No restraints, no toils, no dull tasks are to be found within my happy domains. All is pleasure, life and good humour. Come, then, my dear! Let me put you on this dress, which will make you quite enchanting; and away, away, with me!"

Melissa felt a strong inclination to comply with the call of this inviting nymph; but first she thought it would be prudent at least to ask her name.

"Myname," said she, "is DISSIPATION."

The other female then advanced. She was clothed in a close habit of brown stuff, simply relieved with white. She wore her smooth hair under a plain cap. Her whole person was perfectly neat

and clean. Her look was serious, but satisfied: and her air was staid and compassed. She held in one hand a distaff; on the opposite arm hung a work-basket; and the girdle round her waist was garnished with scissars, knitting needles, reels, and other implements of female labour. A bunch of keys hung at her side. She thus accosted the sleeping girl:

“Melissa, I am the genius who have ever been the friend and companion of your mother: and I now offer my protection to you. I have no allurements to tempt you with, like those of my garrival. Instead of spending all your time in amusements, if you enter yourself in my train, you must rise early, and pass the long day in a variety of employments, some of them difficult, some laborious, and all requiring some exertion of body or mind. You must dress plainly, live mostly at home, and aim at being

useful rather than shining. But in return I will insure you content, even spirits, self-approbation, and the esteem of all who thoroughly know you. If these offers appear to your young mind less inviting than those of my rival, be assured, however, that they are more real. She has promised much more than she can ever make good. Perpetual pleasures are no more in the power of Dissipation, than of Vice or Folly to bestow. Her delights quickly pall, and are inevitably succeeded by languor and disgust. She appears to you under disguise, and what you see is not her real face. For myself, I shall never seem to you less amiable than I now do, but on the contrary, you will like me better and better. If I look grave to you now, you will hear me sing at my work; and when work is over, I can dance too. But I have said enough. It is time for you to choose whom you will follow, and upon that

choice all your happiness depends. If you would know my name, it is HOUSE-WIFERY."

Melissa heard her with more attention than delight; and though overawed by her manner, she could not help turning again to take another look at the first speaker. She beheld her still offering her presents with so bewitching an air that she felt it scarcely possible to resist: when, by a lucky accident, the mask with which Dissipation's face was so artfully covered, fell off. As soon as Melissa beheld instead of the smiling features of youth and cheerfulness, a countenance wan and ghastly with sickness, and soured by fretfulness, she turned away with horror, and gave her hand unreluctantly to her sober and sincere companion.

TWENTIETH EVENING.

ON METALS.

PART II.

Tutor—George—Harry.

T. WELL—have you forgot what I told you about metals the other day?

G. O no!

H. I am sure I have not.

T. What metals were they that we talked about?

G. Gold, silver, and quicksilver.

T. Suppose, then, we go on to the rest?

G. Pray do.

H. Yes by all means.

T. Very well. You know *copper*, I don't doubt?

G. O yes!

T. What colour do you call it?

G. I think it is a sort of reddish brown.

T. True. Sometimes, however, it is of a bright red like sealing-wax. It is not a very heavy metal, being not quite nine times the weight of water. It is very ductile, bearing to be rolled or hammered out to a very thin plate, and also to be drawn out to a fine wire.

H. I remember seeing a halfpenny that had been rolled out to a long ribbon.

G. Yes, and I have seen half a dozen men at a time with great hammers beating out a piece of copper at the brazier's.

T. Copper requires a very considerable heat to melt it: and by long exposure to the fire, it may be burned or calcined; for it, like all we are now to speak of, is an *imperfect* metal.

H. And it rusts very easily, does it not?

T. It does; for all acids dissolve or corrode it, so do salts of every kind;

whence even air and common water in a short time act upon it, for they are never free from somewhat of a saline nature.

G. Is not verdigris the rust of copper?

T. It is ;—a rust produced by the acid of grapes. But every rust of copper is of a blue or green colour, as well as verdigris.

H. And are they all poison too?

T. They are all so in some degree, producing violent sickness and pain in the bowels. They are all, too, extremely nauseous to the taste, and the metal itself when heated tastes and smells very disagreeably.

T. Why is it used, then, so much in cooking, brewing, and the like?

T. Because it is a very convenient metal for making vessels, especially large ones, as it is easily worked, and is sufficiently strong, though hammered thin, and bears the fire well. And if

vessels of it are kept quite clean, and the liquor not suffered to stand long in them when cold, there is no danger in their use. But copper vessels for cooking are generally lined on the inside with tin.

G. What else is copper used for?

T. A variety of things. Sheets of copper are sometimes used to cover buildings; and of late a great quantity is consumed in sheathing ships, that is, in covering all the part under water; the purpose of which is, to protect the timber from the worms, and also to make the ship sail faster, by means of the smoothness and therefore less obstruction which the copper offers to the water, as the ship is forced through it by the action of the wind on the sails.

H. Money is made of copper too.

T. It is; for it takes an impression in coining very well, and its value is a proper proportion below silver, for a price

for the cheapest commodities. In some poor countries they have little other than copper coin. Another great use of copper is an ingredient in mixed metals, such as bell-metal, cannon-metal, and particularly brass.

H. But brass is yellow.

T. True; it is converted to that colour, by means of another metallic substance named *zinc* or *spelter*, the natural colour of which is white. A kind of brown stone called *calamine* is an ore of zinc. By filling a pot with layers of powdered calamine and charcoal placed alternately with copper, and applying a pretty strong heat, the zinc is driven in vapour out of the calamine, and penetrates the copper, changing it into brass.

G. What is the use of turning copper into brass?

T. It gains a fine gold-like colour, and becomes harder, more easy to melt, and less liable to rust. Hence it is preferred

for a variety of utensils, ornamental and useful. Brass does not bear hammering well, but is generally cast into the shape wanted, and then turned into a lathe and polished. Well—these are the principal things I have to say about copper.

H. But where does it come from?

T. Copper is found in many countries. Our island yields abundance, especially in Wales and Cornwall. In Anglesey is a whole hill called Paris mountain, consisting of copper-ore, from which immense quantities are dug every year. Now for *iron*.

H. Ay! that is the most useful of all the metals.

T. I think it is; and it is likewise the most common, for there are few countries in the world possessing hills and rocks, where it is not met with, more or less. Iron is the hardest of metals, the most elastic or springy, very tenacious or difficult to break, the most difficultly

fusible, and one of the lightest, being only seven or eight times as heavy as water.

G. You say it is difficult to break ; but I snapped the blade of a penknife the other day by only bending it a little ; and my mother is continually breaking her needles.

T. Properly objected ! but the qualities of iron differ extremely according to the method of preparing it. There are forged iron, cast iron, and steel, which are very different from each other. Iron, when first melted from its ore, has little malleability, and the vessels and other implements that are made of it in that state, by casting into moulds, are easily broken. It acquires toughness and malleability by *forging*, which is done by beating it when red hot with heavy hammers, till it becomes ductile and flexible. Steel, again, is made by heating small bars of iron with charcoal,

bone and horn shavings, or other inflammable matters, by which it acquires a finer grain and more compact texture, and becomes harder, and more elastic. Steel may be rendered either very flexible, or brittle, by different manners of *tempering*, which is performed by heating and then quenching it in water.

G. All cutting instruments are made of steel are they not ?

T. Yes ; and the very fine-edged ones are generally tempered brittle, as razors, penknives, and surgeons' instruments ; but sword-blades are made flexible, and the best of them will bend double without breaking or becoming crooked. The steel of which springs are made, has the highest possible degree of elasticity given it. A watch spring is one of the most perfect examples of this kind. Steel for ornaments is made extremely hard and close-grained, so as to bear an exquisite po-

lish. Common hammered iron is chiefly used for works of strength, as horse-shoes, bars, bolts, and the like. It will bend but not straighten itself again, as you may see in the kitchen poker. Cast iron is used for pots and cauldrons, cannons, cannon-balls, grates, pillars, and many other purposes in which hardness without flexibility is wanted.

G. What a vast variety of uses this metal is put to !

T. Yes ; I know not when I should have done, if I were to tell you of all.

H. Then I think it is really more valuable than gold, though it is so much cheaper.

T. That was the opinion of the wise Solon, when he observed to the rich king Croesus, who was showing him his treasures, “ he who possesses more iron, will soon be master of all this gold.”

H. I suppose he meant weapons and armour.

T. He did; but there are many nobler uses for these metals; and few circumstances denote the progress of the arts in a country, more than having attained the full use of iron, without which scarcely any manufacture or machinery can be brought to perfection. From the difficulty of melting it out of the ore, many nations have been longer in discovering it than some of the other metals. The Greeks in Homer's time seem to have employed copper or brass for their weapons much more than iron; and the Mexicans and Peruvians, who possessed gold and silver, were unacquainted with iron, when the Spaniards invaded them.

G. Iron is very subject to rust, however.

T. It is so, and that is one of its worst properties. Every liquor, and even a moist air corrode it. But the rust of

iron is not pernicious : on the contrary it is a very useful medicine.

G. I have heard of steel drops and steel filings given for medicine.

T. Yes ; iron is given in a variety of forms, and the property of them all is to strengthen the constitution. Many springs are made medicinal by the iron that they dissolve in the bowels of the earth. These are called *Chalybeate* waters, and they may be known by their inky taste, and the rust-coloured sediment they leave in their course.

H. May we drink such water if we meet with it ?

T. Yes ; it will do you no harm, at least. There is one other property of iron, well worth knowing, and that is that it is the only thing attracted by the magnet or loadstone.

G. I had a magnet once that would take up needles and keys ; but it seemed a bar of iron itself.

T. True. The real loadstone, which is a particular ore of iron, can communicate its virtue to a piece of iron by rubbing it; nay a bar of iron itself, in length of time, by being placed in a particular position, will acquire the same property.

G. Is all the iron used in England produced here?

T. By no means. Our extensive manufactures require a great importation of iron. Much is brought from Norway, Russia, and Sweden; and the Swedish is reckoned particularly excellent. Well, now to another metal, I dare say you can tell me a good deal about *lead*.

H. I know several things about it. It is very heavy and soft, and easily melted.

T. True; these are some of its distinguishing properties. Its weight is between eleven and twelve times that

of water. Its colour is a dull blueish white; and from this livid hue, as well as its being totally void of spring or elasticity, it has acquired a sort of character, of dulness and sluggishness. Thus we say of a stupid man, that he has a *leaden* disposition.

G. Lead is very malleable, I think.

T. Yes; it may be beaten out into a pretty thin leaf, but it will not bear drawing into fine wire. It is not only very fusible, but very readily calcined by heat, changing into a powder, or a scaly matter, which may be made to take all colours by the fire, from yellow to deep red. You have seen red lead?

G. Yes.

T. That is calcined lead exposed for a considerable time to a strong flame. Lead may even be changed into glass by a moderate heat; and there is a good deal of it in our finest glass.

G. What is white lead?

T. It is lead corroded by the steam of vinegar. Lead in various forms is much used by painters. Its calces dissolve in oil, and are employed for the purpose of thickening paint and making it dry. All lead paints, however, are unwholesome as long as they continue to smell, and the fumes of lead when melted are likewise pernicious. This is the cause why painters and plumbers are so subject to various diseases, particularly violent colics and palsies. The white-lead manufacture is so hurtful to the health, that the workmen in a very short time are apt to lose the use of their limbs, and be otherwise severely indisposed.

G. I wonder, then, that any body will work in it.

T. Ignorance and high wages are sufficient to induce them. But it is to be lamented that in a great many manufactures the health and lives of individuals are sacrificed to the convenience

and profit of the community. Lead, too, when dissolved, as it may be in all sour liquors, is a slow poison, and the more dangerous as it gives no disagreeable taste. A salt of lead made with vinegar is so sweet as to be called the sugar of lead. It has been too common to put this or some other preparation of lead into sour wines, in order to cure them; and much mischief has been done by this practice.

G. If lead is poisonous, is it not wrong to make water-pipes and cisterns of it?

T. This has been objected to; but it does not appear that water can dissolve any of the lead. Nor does it readily rust in the air, and hence it is much used to cover buildings with, as well as to line spouts and water-courses. For these purposes the lead is cast into sheets which are easily cut and hammered into any shape.

H. Bullets and shot, too, are made of lead.

T. They are; and in this way it is ten times more destructive than as a poison.

G. I think lead seems to be more used than any metal except iron.

T. It is; and the plenty of it in our country, is a great benefit to us, both for domestic use, and as an article that brings in much profit by exportation.

G. Where are our principal lead-mines?

T. They are much scattered about our island. The west of England produces some, in Cornwall, Devonshire, and Somersetshire. Wales affords a large quantity. Derbyshire has long been noted for its lead-mines, and so have Northumberland and Durham. And there are considerable ones in the southern part of Scotland. Now do you recollect another metal to be spoken about?

G. Tin.

T. True. Tin resembles lead in colour, but has a more silvery whiteness. It is soft and flexible, like lead, but is distinguished by the crackling noise it makes on being bent. It melts as easily as lead, and also is readily calcined by keeping it in the fire. It is the lightest of the metals, being only seven times as heavy as water. It may be beaten into a thin leaf, but not drawn out to wire.

G. Is tin of much use?

T. It is not often used by itself, but very frequently in conjunction with other metals. As tin is little liable to rust, or to be corroded by common liquors, it is employed for a lining or coating of vessels made of copper or iron. The saucepans and kettles in the kitchen, you know, are all tinned.

G. Yes. How is it done?

T. By melting the tin, and spreading it upon the surface of the copper, which

is first heated, in order to make the tin adhere.

H. But what are the vessels made at the tinman's? Are they not all tin?

T. No. *Tinned-ware* (as it is properly called) is made of thin iron plates, coated over with tin by dipping them into a vessel full of melted tin. These plates are afterwards cut and bent to proper shapes, and the joinings are soldered together with a mixture of tin and other metals. Another similar use of tin is in what is called the silvering of pins.

G. What—is not that real silvering?

T. No. The pins which are made of brass wire, after being pointed and headed are boiled in hot water in which grain-tin is put along with tartar, which is a crust that collects on the inside of wine casks. The tartar dissolves some of the tin, and makes it adhere to the surface of the pins, and thus thousands are covered in an instant.

H. That is as clever as what you told us of the gilding of buttons.

T. It is. Another purpose for which great quantities of tin used to be employed was the making of pewter. The best pewter consists chiefly of tin, with a small mixture of other metals to harden it; and the London pewter was brought to such perfection as to look almost as well as silver.

G. I can just remember a long row of pewter plates at my grandmother's.

T. You may. In her time all the plates and dishes for the table were made of pewter, and a handsome range of pewter shelves was thought a capital ornament for a kitchen. At present this trade is almost come to nothing through the use of earthenware and china; and pewter is employed for little but the worms of stills and barbers' basins, and porter pots. But a good deal is still exported. Tin is likewise an ingredient in other mixed metals for various pur-

poses, but on the whole, less of it is used than of the other common metals.

G. Is not England more famous for tin than any other country? I have read of the Phoenicians trading here for it in very early times.

T. They did; and tin is still a very valuable article of export from England. Much of it is sent as far as China. The tin mines are chiefly in Cornwall, and I believe they are the most productive of any in Europe. Very fine tin is also got in the peninsula of Malacca in the East Indies. Well—we have now gone through the metals.

G. But you said something about a kind of metal called zinc.

T. That is one of another class of mineral substances, called *semimetals*. These resemble metals in every quality but ductility, of which they are almost wholly destitute, and for want of it, they can seldom be used in the arts, except when joined with metals.

G. Are there many of them ?

T. Yes, several ; but we will not talk of them till I have taken some opportunity of showing them to you, for probably you may never have seen any of them. Now try to repeat the names of all the metals to me in the order of their weight.

H. There is first *gold*.

G. Then *quicksilver*, *lead*, *silver*.

H. *Copper*, *iron*, *tin*.

T. Very right. Now I must tell you of an odd fancy that chemists have had of christening these metals by the names of the heavenly bodies. They have called gold *Sol*, or the sun.

G. That is suitable enough to its colour and brightness.

H. Then silver should be the moon, for I have heard moon-light called of a silvery hue.

T. True—and they have named it so. It is *Luna*. Quicksilver is *Mercury*, so named probably from its great propensity

to dance and jump about, for *Mercury*, you know, was very nimble.

G. Yes—he had wings to his heels.

T. Copper is *Venus*.

G. *Venus*! surely it is scarcely beautiful enough for that.

T. But they had disposed of the most beautiful ones before. Iron is *Mars*.

H. That is right enough, because swords are made of iron.

T. True. Then tin is *Jupiter*, and lead *Saturn*. I suppose only to make out the number. Yet the dulness of lead might be thought to agree with that planet which is most remote from the sun. These names, childish as they may seem, are worth remembering, since chemists and physicians still apply them to many preparations of the various metals. You will, probably, often hear of *martial*, *lunar*, *mercurial*, and *saturnine*; and you may now know what they mean.

G. I think the knowledge of metals seems more useful than all you have told us about plants.

T. I don't know that. Many nations make no use at all of metals, but there are none which do not owe a great part of their subsistence to vegetables. However, without inquiring what parts of natural knowledge are *most* useful, you may be assured of this, that all are useful in some degree or other; and there are few things that give one man greater superiority over another, than the extent and accuracy of his knowledge in these particulars. One person passes all his life upon the earth, a stranger to it; while another finds himself at home every where.

TWENTIETH EVENING.

EYES AND NO EYES;

OR,

THE ART OF SEEING.

WELL, *Robert*, where have you been walking this afternoon? (said Mr. *Andrews* to one of his pupils at the close of a holiday.)

R. I have been, Sir, to Broom-heath, and so round by the windmill upon Camp-mount, and home through the meadows by the river-side.

Mr. *A.* Well, that's a pleasant round.

R. I thought it very dull, Sir; I scarcely met with a single person. I had rather by half have gone along the turnpike road.

Mr. *A.* Why, if seeing men and horses is your object, you would indeed be better entertained on the high-road. But did you see *William*?

R. We set out together, but he lagged behind in the lane, so I walked on and left him.

Mr. A. That was a pity. He would have been company for you.

R. O, he is so tedious, always stopping to look at this thing and that! I had rather walk alone. I dare say he is not got home yet.

Mr. A. Here he comes. Well, *William*, where have you been?

W. O, Sir, the pleasantest walk! I went all over Broom-heath, and so up to the mill at the top of the hill, and then down among the green meadows by the side of the river.

Mr. A. Why, that is just the round *Robert* has been taking, and he complains of its dulness, and prefers the high-road.

W. I wonder at that. I am sure I hardly took a step that did not delight

me, and I have brought my handkerchief full of curiosities home.

Mr. *A.* Suppose, then, you give us some account of what amused you so much. I fancy it will be as new to *Robert* as to me.

W. I will, Sir. The lane leading to the heath, you know, is close and sandy, so I did not mind it much, but made the best of my way. However, I spied a curious thing enough in the hedge. It was an old crab-tree, out of which grew a great bunch of something green, quite different from the tree itself. Here is a branch of it.

Mr. *A.* Ah! this is Misseltoe, a plant of great fame for the use made of it by the Druids of old in their religious rites and incantations. It bears a very slimy white berry, of which bird-lime may be made, whence its Latin name of *Viscus*. It is one of those plants which do not

grow in the ground by a root of their own, but fix themselves upon other plants; whence they have been humorously styled *parasitical*, as being hangers-on, or dependents. It was the misseltoe of the oak that the Druids particularly honoured.

W. A little farther on I saw a green woodpecker fly to a tree, and run up the trunk like a cat.

Mr. A. That was to seek for insects in the bark, on which they live. They bore holes with their strong bills for that purpose, and do much damage to the trees by it.

W. What beautiful birds they are.

Mr. A. Yes; they have been called, from their colour and size, the English parrot.

W. When I got upon the open heath, how charming it was! The air seemed so fresh, and the prospect on every side so free and unbounded! Then it was

all covered with gay flowers, many of which I had never observed before. There were at least three kinds of heath (I have got them in my handkerchief here), and gorse, and broom, and bell-flower, and many others of all colours, that I will beg you presently to tell me the names of.

Mr. A. That I will readily.

W. I saw too, several birds that were new to me. There was a pretty greyish one, of the size of a lark, that was hopping about some great stones; and when he flew he showed a great deal of white above his tail.

Mr. A. That was a wheat-ear. They are reckoned very delicious birds to eat, and frequent the open downs in Sussex, and some other counties, in great numbers.

W. There was a flock of lapwings upon a marshy part of the heath, that amused me much. As I came near

them, some of them kept flying round and round just over my head, and crying *pewit* so distinctly, one might almost fancy they spoke. I thought I should have caught one of them, for he flew as if one of his wings was broken, and often tumbled close to the ground; but as I came near, he always made a shift to get away.

Mr. A. Ha, ha! you were finely taken in then! This was all an artifice of the bird's to entice you away from its nest; for they build upon the bare ground, and their nests would easily be observed, did they not draw off the attention of intruders by their loud cries and counterfeit lameness.

W. I wish I had known that, for he led me a long chase often over shoes in water. However, it was the cause of my falling in with an old man and a boy who were cutting and piling up turf for fuel, and I had a good deal of talk with

them about the manner of preparing the turf, and the price it sells at. They gave me, too, a creature I never saw before—a young viper, which they had just killed, together with its dam. I have seen several common snakes, but this is thicker in proportion and of a darker colour than they are.

Mr. *A.* True. Vipers frequent those turfy boggy grounds pretty much, and I have known several turf-cutters bitten by them.

W. They are very venomous, are they not?

Mr. *A.* Enough so to make their wounds painful and dangerous, though they seldom prove fatal.

W. Well—I then took my course up to the windmill on the mount. I climbed up the steps of the mill, in order to get a better view of the country round. What an extensive prospect! I counted fifteen church-steeple; and I saw several

gentlemen's houses peeping out from the midst of green woods and plantations; and I could trace the windings of the river all along the low grounds, till it was lost behind a ridge of hills. But I'll tell you what I mean to do, Sir, if you will give me leave.

Mr. *A.* What is that?

W. I will go again, and take with me Cary's county-map, by which I shall probably be able to make out most of the places.

Mr. *A.* You shall have it, and I will go with you and take my pocket spying glass.

W. I shall be very glad of that. Well—a thought struck me, that as the hill is called *Camp-mount*, there might probably be some remains of ditches and mounds with which I have read that camps were surrounded. And I really believe I discovered something of

that sort running round one side of the mount.

Mr. *A.* Very likely you might. I know antiquaries have described such remains as existing there, which some suppose to be Roman, others Danish; we will examine them further, when we go.

W. From the hill I went straight down to the meadows below, and walked on the side of a brook that runs into the river. It was all bordered with reeds and flags and tall flowering plants, quite different from those I had seen on the heath. As I was getting down the bank to reach one of them, I heard something plunge into the water near me. It was a large water rat, and I saw it swim over to the other side, and go into its hole. There were a great many large dragon flies all about the stream; I caught one of the finest, and have got

him here in a leaf. But how I longed to catch a bird that I saw hovering over the water, and every now and then darting down into it! It was all over a mixture of the most beautiful green and blue, with some orange-colour. It was somewhat less than a thrush, and had a large head and bill, and a short tail.

Mr. A. I can tell you what that bird was—a kingfisher, the celebrated halcyon of the ancients, about which so many tales are told. It lives on fish, which it catches in the manner you saw. It builds in holes in the banks, and is a shy retired bird, never to be seen far from the stream where it inhabits.

W. I must try to get another sight of him, for I never saw a bird that pleased me so much. Well—I followed this little brook till it entered the river, and then took the path that runs along the bank. On the opposite side I observed several little birds running along the

shore, and making a piping noise. They were brown and white, and about as big as a snipe.

Mr. A. I suppose they were sand-pipers, one of the numerous family of birds that get their living by wading among the shallows, and picking up worms and insects.

W. There were a great many swallows, too, sporting upon the surface of the water, that entertained me with their motions. Sometimes they dashed into the stream; sometimes they pursued one another so quick; that the eye could scarcely follow them. In one place, where a high steep sand-bank rose directly above the river, I observed many of them go in and out of holes with which the bank was bored full.

Mr. A. Those were sand-martins, the smallest of our species of swallows. They are of a mouse colour above, and white beneath. They make their nests and

bring up their young in these holes, which run a great depth, and by their situation are secure from all plunderers.

W. A little further I saw a man in a boat who was catching eels in an odd way. He had a long pole with broad iron prongs at the end, just like Neptune's trident, only there were five instead of three. This he pushed straight down among the mud in the deepest parts of the river, and fetched up the eels sticking between the prongs.

Mr. A. I have seen this method. It is called spearing of eels.

W. While I was looking at him, a heron came flying over my head, with his large flagging wings. He lit at the next turn of the river, and I crept softly behind the bank to watch his motions. He had waded into the water as far as his long legs would carry him, and was standing with his neck drawn in, looking intently on the stream. Presently

he darted his long bill as quick as lightning into the water, and drew out a fish, which he swallowed. I saw him catch another in the same manner. He then took alarm at some noise I made, and flew away slowly to a wood at some distance, where he settled.

Mr. *A.* Probably his nest was there, for herons build upon the loftiest trees they can find, and sometimes in society together, like rooks. Formerly, when these birds were valued for the amusement of hawking, many gentlemen had their *heronries*, and a few are still remaining.

W. I think they are the largest wild birds we have.

Mr. *A.* They are of a great length and spread of wing, but their bodies are comparatively small.

W. I then turned homeward across the meadows, where I stopped a while to look at a large flock of starlings which kept flying about at no great distance.

I could not tell at first what to make of them; for they rose all together from the ground as thick as a swarm of bees, and formed themselves into a kind of black cloud, hovering over the field. After having a short round they settled again, and presently rose again in the same manner. I dare say there were hundreds of them.

Mr. A. Perhaps so, for in the fenny countries their flocks are so numerous as to break down whole acres of reeds by settling on them. This disposition of starlings to fly in close swarms was remarked even by Homer, who compares the foe flying from one of his heroes, to a *cloud* of stares retiring dismayed at the approach of the hawk.

W. After I had left the meadows, I crossed the corn-fields in the way to our house, and passed close by a deep marle pit. Looking into it, I saw in one of the sides a clustre of what I took to be

shells: and upon going down, I picked up a clod of marle, which was quite full of them; but how sea shells could get there I cannot imagine.

Mr. *A.* I do not wonder at your surprise, since many philosophers have been much perplexed to account for the same appearance. It is not uncommon to find great quantities of shells and relics of marine animals even in the bowels of high mountains, very remote from the sea. They, are certainly proofs that the earth was once in a very different state from what it is at present; but in what manner and how long ago these changes took place, can only be guessed at.

W. I got to the high field next our house just as the sun was setting, and I stood looking at it till it was quite lost. What a glorious sight! The clouds were tinged purple and crimson and yellow of all shades and hues, and the clear sky varied from blue to a fine green at the

horizon. But how large the sun appears just as it sets ! I think it seems twice as big as when it is over head.

Mr. *A.* It does so ; and you may probably have observed the same apparent enlargement of the moon at its rising.

W. I have ; but pray what is the reason of this ?

Mr. *A.* It is an optical deception, depending upon principles which I cannot well explain to you till you know more of that branch of science. But what a number of new ideas this afternoon's walk has afforded you ! I do not wonder that you found it amusing : it has been very instructive too. Did *you* see nothing of all these sights, *Robert* ?

R. I saw some of them, but I did not take particular notice of them.

Mr. *A.* Why not ?

R. I don't know. I did not care about them, and I made the best of my way home.

Mr. *A.* That would have been right if you had been sent of a message; but as you only walked for amusement, it would have been wiser to have sought out as many sources of it as possible. But so it is—one man walks through the world with his eyes open, and another with them shut; and upon this difference depends all the superiority of knowledge the one acquires above the other. I have known sailors who had been in all the quarters of the world, and could tell you nothing but the signs of the tippling-houses they frequented in different ports, and the price and quality of the liquor. On the other hand, a Franklin could not cross the channel without making some observations useful to mankind. While many a vacant thoughtless youth is whirled throughout Europe without gaining a single idea worth crossing a street for, the observing eye and inquiring mind find matter of improvement

and delight in every ramble in town or country. Do *you* then, *William*, continue to make use of your eyes; and *you*, *Robert*, learn that eyes were given you to use.

TWENTY-FIRST EVENING.

WHY THE EARTH MOVES ROUND THE SUN.

Papa—Lucy.

P. You remember, *Lucy*, that I explained to you some time ago what was the cause that things fell to the ground.

L. O yes—it was because the ground drew them to it.

P. True. That is a consequence of the universal law in nature, that bodies attract each other in proportion to their bulk. So a very small thing in the neighbourhood of a very large one always tends to go to it, if not prevented

by some other power. Well—you know I told you that the sun was a ball a vast many times bigger than the ball we inhabit, called the earth; upon which you properly asked, how then it happened that the earth did not fall into the sun.

L. And why does it not?

P. That I am going to explain to you. You have seen your brother whirl round an ivory ball tied to the end of a string which he held in his hand.

L. Yes—and I have done it myself too.

P. Well then—you felt that the ball was continually pulling, as if it tried to make its escape.

L. Yes; and one my brother was swinging *did* make its escape, and flew through the sash.

P. It did so. That was a lesson, in the *centrifugal* motion, or that power by which a body thus whirled continually endeavours to fly off from the centre

round which it moves. This is owing to the force or impulse you give it at setting out, as if you were going to throw it away from you. The string by which you hold it, on the contrary, is the power which keeps the ball towards the centre, called the *centripetal* power. Thus you see there are two powers acting upon the ball at the same time, one to make it fly off, the other to hold it in; and the consequence is, that it moves directly according to neither but between both; that is, round and round. This it continues to do while you swing it properly; but if the string breaks or slips off, away flies the ball; on the other hand, if you cease to give it the whirling force, it falls towards your hand.

L. I understand all this.

P. I will give you another instance of this double force acting at the same time. Do not you remember seeing some curious feats of horsemanship?

L. Yes.

P. One of them was, that a man standing with one leg upon the saddle, and riding full speed, threw up balls into the air, and caught them as they fell.

L. I remember it very well.

P. Perhaps you would have expected these balls to have fallen behind him, as he was going at such a rate.

L. So I did.

P. But you saw that they fell into his hand as directly as if he had been standing quite still. That was because at the instant he threw them up, they received the motion of the horse straight forwards as well as the upright motion that he gave them, so that they made a slanting line through the air, and came down in the same place they would have reached if he had held them in his hand all the while.

L. That is very curious indeed !

P. In the same manner you may have observed, in riding in a carriage, that if

you throw any thing out of the window, it falls directly opposite, just as if the carriage was standing still, and is not left behind you.

L. I will try that the next time I ride in one.

P. You are then to imagine the sun to be a mighty mass of matter, many thousand times bigger than our earth, placed in the centre, quiet and unmoved. You are to conceive our earth as soon as created, launched with vast force in a straight line, as if it were a bowl on a green. It would have flown off in this line for ever, through the boundless regions of space, had it not at the same instant received a pull from the sun by its attraction. By the wonderful skill of the Creator, these two forces were made exactly to counterbalance each other ; so that just as much as the earth, from the original motion given it, tends

to fly forwards, just so much the sun draws it to the centre; and the consequence is, that it takes a course between the two, which is a circle round and round the sun.

L. But if the earth was set a rolling like a bowl upon a green, I should think it would stop of itself, as the bowl does.

P. The bowl stops because it is continually rubbing against the ground, which checks its motion, but the ball of the earth moves in empty space, where there is nothing to stop it.

L. But if I throw a ball through the air, it will not go on for ever, but it will come down to the ground.

P. That is because the force with which you can throw it is much less than the force by which it is drawn to the earth. But there is another reason too which is the resistance of the air. This space all round us and over us is not

empty space ; it is quite full of a thin transparent fluid called air.

L. Is it ?

P. Yes. If you move your hand quickly through it, you will find something resisting you, though in a slight degree. And the wind, you well know, is capable of pressing against any thing, with almost irresistible force ; and yet wind is nothing but a quantity of air put into violent motion. Every thing then that moves through the air is continually obliged to push some of this fluid out of the way, by which means it is constantly losing part of its motion.

L. Then the earth would do the same.

P. No ; for it moves in *empty space*.

L. What does it not move through the air ?

P. The earth does not move *through* the air, but carries the air along with it. All the air is contained in what is called

the *atmosphere*, which you may compare to a kind of mist or fog clinging all round to the ball of the earth, and reaching a certain distance above it, which has been calculated at above forty-five miles.

L. That is above the clouds, then.

P. Yes: all the clouds are within the atmosphere, for they are supported by the air. Well—this atmosphere rolls about along with the earth, as if it were a part of it, and moves with it through the sky, which is a vast field of empty space. In this immense space are all the stars and planets, which have also their several motions. There is nothing to stop them, and therefore they continually go on, by means of the force that the Creator has originally impressed upon them.

L. Do not some of the stars move round the sun, as well as our earth?

P. Yes; those that are called *planets*. These are all subject to the same laws of

motion with our earth. They are attracted by the sun as their centre, and form, along with the earth, that assemblage of worlds, which is called the *solar system*.

L. Is the moon one of them?

P. The moon is called a *secondary* planet, because its immediate connexion is with our earth, round which it rolls, as we do round the sun. It however accompanies our earth on its journey round the sun. But I will tell you more about its motion, and about the other planets and stars, another time. It is enough at present, if you thoroughly understand what I have been describing.

L. I think I do.

THE UMBELLIFEROUS PLANTS.

Tutor—George—Harry.

H. What plant is that man gathering under the hedge?

G. I don't know; but the boys call the stalks kexes, and blow through them.

H. I have seen them; but I want to know the plant.

G. Will you please to tell us, Sir, what it is?

T. It is hemlock.

G. Hemlock is poison, is it not?

T. Yes, in some degree: and it is also a medicine; that man is gathering it for the apothecaries.

H. I should like to know it.

T. Well then—go and bring one.

[Harry fetches it.]

G. I think I have seen a great many of this sort.

T. Perhaps you may; but there are

many other kinds of plants extremely like it. It is one of a large family called the *umbelliferous*, which contains both food, physic, and poison. It will be worth while for you to know something about them, so let us examine this hemlock closely. You see this tall hollow stalk, which divides into several branches, from each of which spring spokes or *rundles*, as they are called, of flower-stalks. You see they are like rays from a circle, or the spokes of a wheel.

H. Or like the sticks of an umbrella.

T. True ; and they are called *umbels*, which has the same derivation.—If you pursue one of these rundles or umbels, you will find that each stick or spoke terminates in another set of smaller stalks, each of which bears a single small flower.

G. They are small ones indeed.

T. But if you look sharply, I dare say your eyes are good enough to distinguish

that they are divided into five leaves, and furnished with five chives and two pistils in the middle.

H. I can see them.

G. And so can I.

T. The pistils are succeeded by a sort of fruit, which is a twin seed joined in the middle, as you may see in this rundle that is past flowering. Here I divide one of them into two.

G. Would each of these grow ?

T. Yes. Well—this is the structure of the flowering part of the umbelliferous tribe. Now for the leaf. Pluck one.

H. Is this one leaf, or many ?

T. It is properly one, but it is cut and divided into many portions. From this mid-rib spring smaller leaves set opposite each other ; and from the rib of each of these proceed others, which themselves are also divided. These are called doubly or trebly pinnated leaves ;

and most of the umbelliferous plants, but not all, have leaves of this kind.

H. It is like a parsley leaf.

T. True—and parsley is one of the same tribe, and hemlock and others are sometimes mistaken for it.

G. How curiously the stalk of this hemlock is spotted!

T. Yes. That is one of the marks by which it is known. It is also distinguished by its peculiar smell, and by other circumstances which you can only understand when you have compared a number of the tribe. I will now tell you about some others, the names of which you are probably acquainted with. In the first place, there are carrots and parsnips.

H. Carrots and parsnips!—they are not poisons, I am sure.

G. I remember, now, that carrots have such a leaf as this.

T. They have. It is the *roots* of

these, you know, that are eaten. But we eat the *leaves* of parsley and fennel, which are of the same class. Celery is another, the *stalks* of which are chiefly used, made white by trenching up the earth about them. The stalks of angelica are used differently.

H. I know how—candied.

T. Yes.—Then there are many of which the *seeds* are used. There is carraway.

H. What, the seeds that are put into cakes and comfits?

T. Yes. They are warm and pungent to the taste; and so are the seeds of many others of the umbelliferous plants, as coriander, fennel, wild carrot, angelica, anise, cummin, and dill. All these are employed in food or medicine, and are good in warming or strengthening the stomach.

H. Those are pleasant medicines enough.

T. They are ; but you will not say the same of some others of the class, which are noted medicines too ; such as the plant yielding asafetida, and several more, from which what are called the fetid gums are produced.

G. Asafetida !—that's nasty stuff, I know ; does it grow here ?

T. No ; and most of the sweet seeds I before mentioned come from abroad too. Now I will tell you of some of the poisons.

H. Hemlock is one that we know already.

T. Yes. Then there is another kind that grows in the water, and is more poisonous, called Water-Hemlock. Another is a large plant growing in ditches, with leaves extremely like celery, called Hemlock-Dropwort. Another, common in drier situations, and distinguished by leaves less divided than most of the class, is Cow-Parsnip or Madnep. Of some

of these the leaves, of others the root, are most poisonous. Their effects are to make the head giddy, bring on stupidity or delirium, and cause violent sickness. The Athenians used to put criminals to death, by making them drink the juice of a kind of hemlock growing in that country, as you may read in the life of that excellent philosopher, Socrates, who was killed in that manner.

H. What was he killed for?

T. Because he was wiser and better than his fellow-citizens. Among us it is only by accident that mischief is done by these plants. I remember a melancholy instance of a poor boy, who, in rambling about the fields with his little brothers and sisters, chanced to meet with a root of Hemlock-Dropwort. It looked so white and nice, that he was tempted to eat a good deal of it. The other children also ate some, but not so

much. When they got home they were all taken very ill. The eldest boy, who had eaten most, died in great agony. The others recovered, after suffering a great deal.

G. Is there any way of preventing their bad effects?

T. The best way is to clear the stomach as soon as possible by a strong vomit and large draughts of warm water. After that, vinegar is useful in removing the disorder of the head.

H. But are the roots sweet and pleasant, that people should be tempted to eat them?

T. Several of them are. There is a small plant of the tribe, the root of which is much sought after by boys, who dig for it with their knives. It is round, and called earth-nut, or pig-nut.

G. But that's not poison, I suppose?

T. No; but it is not very wholesome. I believe, however, that the roots of the

most poisonous become innocent by boiling. I have heard that boiled hemlock roots are as good as carrots.

G. I think I should not like to eat them, however. But pray why should there be any poisons at all?

T. What we call poisons are only hurtful to particular animals. They are the proper food of others, and no doubt do more good than hurt in the creation. Most of the things that are poisonous to us in large quantities, are useful medicines in small ones; and we have reason bestowed upon *us*, to guard us against mischief. Other animals in general refuse by instinct what would prove hurtful to them. You see beneath yonder hedge a great crop of tall flourishing plants with white flowers. They are of the umbelliferous family, and are called Wild Cicely, or Cow-weed. The latter name is given them, because the cow

will not touch them, though the pasture be ever so bare.

H. Would they poison them?

T. Perhaps they would; at least they are not proper food for them. We will go and examine them, and I will show you how they differ from hemlock, for which they are sometimes mistaken.

G. I should like to get some of these plants, and dry them.

T. You shall, and write down the names of them all, and learn to know the innocent from the hurtful.

G. That will be very useful.

T. It will. Remember now the general character of the umbelliferous class. The flower stalks are divided into spokes or umbels, which are again divided into others, each of them terminated by a small five-leaved flower, having five stamens and two pistils, succeeded by a twin seed. Their leaves are generally

finely divided. You will soon know them, after having examined two or three of the tribe. Remember too, that they are a *suspicious race*, and not to be made free with till you are well acquainted with them.

HUMBLE LIFE;

OR,

THE COTTAGERS.

(Mr. Everard and Charles, *Walking in the fields.*)

Mr. *E.* WELL, Charles, you seem to be in deep meditation. Pray what are you thinking about?

Ch. I was thinking, Sir, how happy it is for us that we are not in the place of that poor weaver whose cottage we just passed by.

Mr. *E.* It is very right to be sensible of all the advantages that Providence has bestowed upon us in this world, and

I commend you for reflecting on them with gratitude. But what particular circumstance of comparison between our condition and his struck you most just now ?

Ch. O, almost every thing ! I could not bear to live in such a poor house, with a cold clay floor, and half the windows stopped with paper. Then how poorly he and his children are dressed ! and I dare say they must live as poorly too.

Mr. E. These things would be grievous enough to you, I do not doubt, because you have been accustomed to a very different way of living. But if they are healthy and contented, I don't know that we have much more to boast of. I believe the man is able to procure wholesome food for his family, and clothes and firing enough to keep them from suffering from the cold ; and nature wants little more.

Ch. But, what a ragged, barefooted fellow the boy at the door was.

Mr. E. He was—but did you observe his ruddy cheeks, and his stout legs, and the smiling grin upon his countenance? It is my opinion he would beat you in running, though he is half the head less; and I dare say he never cried because he did not know what to do with himself, in his life.

Ch. But, Sir, you have often told me that the mind is the noblest part of man; and these poor creatures, I am sure, can have no opportunity to improve their minds. They must be as ignorant as the brutes, almost.

Mr. E. Why so? Do you think there is no knowledge to be got but from books; or that a weaver cannot teach his children right from wrong?

Ch. Not if he has never learned himself.

Mr. E. True—but I hope the country

we live in is not so unfriendly to a poor man as to afford him no opportunity of learning his duty to God and his neighbour. And as to other points of knowledge, necessity and common observation, will teach him a good deal. But come—let us go and pay them a visit, for I doubt you hardly think them human creatures.

[They enter the cottage—Jacob, the weaver, at his loom. His wife spinning. Children of different ages.]

Mr. E. Good morning to you, friend ! Don't let us disturb you all, pray. We have just stept in to look at your work.

Jacob. I have very little to show you, gentlemen ; but you are welcome to look on. Perhaps the young gentleman never saw weaving before.

Ch. I never did, near.

Jac. Look here, then, master. These

long threads are the warp. They are divided, you see, into two sets, and I pass my shuttle between them, which carries with it the cross threads, and that makes the weft. (*Explains the whole to him.*)

Ch. Dear! how curious! and is all cloth made this way, papa?

Mr. E. Yes; only there are somewhat different contrivances for different kinds of work. Well, how soon do you think you could learn to weave like this honest man?

Ch. O—not for a great while!

Mr. E. But I suppose you could easily turn the wheel, and draw out threads like that good woman.

Ch. Not without some practice, I fancy. But what is that boy doing?

Jac. He is cutting pegs for the shoe-makers, master,

Ch. How quick he does them!

Jac. It is but poor employment, but better than being idle. The first lesson I teach my children is that their hands were made to get their bread with.

Mr. E. And a very good lesson, too.

Ch. What is this heap of twigs for?

Jac. Why, master, my biggest boy and girl have learned a little how to make basket-work, so I have got them a few osiers to employ them at leisure hours. That bird-cage is their making; and the back of that chair in which their grandmother sits.

Ch. Is not that cleverly done, papa?

Mr. E. It is indeed. Here are several arts, you see, in this house, which both you and I should be much puzzled to set about. But there are some books too, I perceive.

Ch. Here is a Bible, and a Testament, and a Prayer-book, and a Spelling-book, and a volume of the Gardener's Dictionary,

Mr. *E.* And how many of your family can read, my friend?

Jac. All the children but the two youngest can read a little, Sir; but Meg, there, is the best scholar among us. She reads us a chapter in the Testament every morning, and very well too, though I say it.

Mr. *E.* Do you hear that, Charles?

Ch. I do, Sir. Here's an almanack, too, against the wall: and here are my favourite ballads of the Children in the Wood, and Chevy-Chase.

Jac. I let the children paste them up, Sir, and a few more that have no harm in them. There's Hearts of Oak, and Rule Britannia, and Robin Gray.

Mr. *E.* A very good choice, indeed. I see you have a pretty garden there behind the house.

Jac. It is only a little spot, Sir; but it serves for some amusement, and use too.

Ch. What beautiful stocks and wall-flowers! We have none so fine in our garden.

Jac. Why, master, to say the truth, we are rather proud of them. I have got a way of cultivating them, that I believe few besides myself are acquainted with; and on Sundays I have plenty of visitors to come and admire them.

Ch. Pray what is this bush with narrow whitish leaves and blue flowers?

Jac. Don't you know? It is rosemary.

Ch. Is it good for any thing?

Jac. We like the smell of it; and when the leaves, mixed with a little calm, make pleasant tea, which we sometimes drink in the afternoon.

Ch. Here are several more plants that I never saw before.

Jac. Some of them are pot-herbs, that we put into our broth or porridge;

and others are physic herbs, for we cannot afford to go to a doctor for every trifling ailment.

Ch. But how do you learn the use of these things?

Jac. Why, partly, master, from an old herbal that I have got; and partly from my good mother and some old neighbours; for we poor people are obliged to help one another as well as we can. If you were curious about plants, I could go into the fields, and show you a great many that we reckon very fine for several uses, though I suppose we don't call them by the proper names.

Mr. E. You keep your garden very neat, friend, and seem to make the most of every inch of ground.

Jac. Why, Sir, we have hands enow and all of us like to be doing a little in it when our in-doors work is over. I am in hopes soon to be allowed a bit of land

from the waste for a potatoe-ground, which will be a great help to us. I shall then be able to keep a pig.

Mr. *E.* I suppose, notwithstanding your industry, you live rather hardly sometimes.

Jac. To be sure, Sir, we are somewhat pinched in dear times and hard weather; but, thank God, I have constant work, and my children begin to be some help to us, so that we fare better than some of our neighbours. If I do but keep my health, I don't fear but we shall make a shift to live.

Mr. *E.* Keep such a contented mind, my friend, and you will have few to envy. Good morning to you, and if any sickness or accident should befall you, remember you have a friend in your neighbour at the hall.

Jac. I will, Sir, and thank you.

Ch. Good morning to you.

Jac. The same to you, master.

[*They leave the cottage.*]

Mr. *E.* Well, Charles, what do you think of our visit?

Ch. I am highly pleased with it, Sir. I shall have a better opinion of a poor cottager as long as I live.

Mr. *E.* I am glad of it. You see when we compare ourselves with this weaver, all the advantage is not on our side. He is possessed of an art, the utility of which secures him a livelihood, whatever may be the changes of the times. All his family are brought up to industry, and show no small ingenuity in their several occupations. They are not without instruction, and especially seem to be in no want of that best of all, the knowledge of their duty. They understand something of the cultivation and uses of plants, and are capable of receiving enjoyment from the beauties of nature. They partake of the pleasures of home and neighbourhood. Above all, they seem content with their lot, and free from anxious

cares and repinings. I view them as truly respectable members of society, acting well the part allotted to them, and that, a part most of all necessary to the well-being of the whole. They may, from untoward accidents, be rendered objects of our compassion, but they never can be of our contempt.

Ch. Indeed, Sir, I am very far from despising them now. But would it not be possible to make them more comfortable than they are at present?

Mr. E. I think it would; and when giving a little from the superfluity of persons in our situation would add so much to the happiness of persons in theirs, I am of opinion that it is unpardonable not to do it. I intend to use my interest to get this poor man the piece of waste land he wants, and he shall have some from my share rather than go without.

Ch. And suppose, Sir, we were to

give him some good potatoes to plant it?

Mr. *E.* We will. Then, you know, we have a fine sow, that never fails to produce a numerous litter twice a year. Suppose we rear one of the next brood to be ready for him as soon as he has got his potatoe-ground into bearing?

Ch. O yes! that will be just the thing. But how is he to build a pig-stye?

Mr. *E.* You may leave that to his own ingenuity! I warrant he can manage such a job as that with the help of a neighbour, at least. Well—I hope both the weaver, and you, will be the better for the acquaintance we have made to-day; and always remember, that *man, when fulfilling the duties of his station, be that station what it may, is a worthy object of respect to his fellow-men.*

TWENTY-SECOND EVENING.

THE BIRTH-DAY GIFT.

THE populous kingdom of Ava, in India beyond the Ganges, was once inherited by a minor prince, who was brought up in the luxurious indolence of an eastern palace. When he had reached the age of seventeen, which, by the laws of that country, was the period of majority for the crown, all the great men of his court, and the governors of the provinces, according to established custom, laid at his feet presents consisting of the most costly products of art and nature that they had been able to procure. One offered a casket of the most precious jewels of Golconda; another a curious piece of clockwork made by an European artist: another, a piece of the richest silk from the looms of

China; another, a bezoar stone said to be a sovereign antidote against all poisons and infectious diseases; another, a choice piece of the most fragrant rose-wood, in a box of ebony inlaid with pearls; another, a golden cruse full of genuine balsam of Mecca; another, a courser of the purest breed of Arabia; and another, a female slave of exquisite beauty. The whole court of the palace was overspread with rarities; and long rows of slaves were continually passing loaded with vessels and utensils of gold and silver, and other articles of high price.

At length an aged magistrate from a distant province made his appearance. He was simply clad in a long cotton robe, and his hoary beard waved on his breast. He made his obeisance before the young monarch, and holding forth an embroidered silken bag, he thus addressed him :

“ Deign, great king, to accept the

faithful homage and fervent good wishes of thy servant on this important day, and with them, the small present I hold in my hand. Small, indeed, it is in show, but not so, I trust, in value. Others have offered what may decorate thy person—here is what will impart perpetual grace and lustre to thy features. Others have presented thee with rich perfumes—here is what will make thy name sweet and fragrant to the latest ages. Others have given what may afford pleasure to thine eyes—here is what will nourish a source of never-failing pleasure within thy breast.—Others have furnished thee with preservatives against bodily contagion—here is what will preserve thy better parts uncontaminated. Others have heaped round thee the riches of a temporal kingdom—this will secure thee the treasures of an eternal one.”

He said, and drew from the purse a book, containing *the moral Precepts of the sage Zendar*, the wisest and most virtuous man the East had ever beheld. “If” (he proceeded) “my gracious sovereign will condescend to make this his constant companion, not an hour can pass in which its perusal may not be a comfort and a blessing. In the arduous duties of thy station it will prove a faithful guide and counsellor. Amidst the allurements of pleasure and the incitements of passion, it will be an incorruptible monitor, that will never suffer thee to err without warning thee of thy error. It will render thee a blessing to thy people, and blessed in thyself; for what sovereign can be the one without the other?”

He then returned the book to its place, and kneeling, gave it into the hands of the king. He received it with

respect and benignity, and history affirms that the use he made of it corresponded with the wishes of the donor.

ON EARTHS AND STONES.

Tutor—George—Harry.

Harry. I WONDER what all this heap of stones is for.

George. I can tell you—it is for the lime-kiln; don't you see it just by?

H. O yes, I do. But what is to be done to them there?

G. Why they are to be burned into lime; don't you know that?

H. But what is lime, and what are its uses?

G. I can tell you one; they lay it on the fields for manure. Don't you remember we saw a number of little heaps of it, that we took for sheep at a distance, and wondered they did not

move? However, I believe we had better ask our tutor about it. Will you please, Sir, to tell us somewhat about lime?

Tutor. Willingly. But suppose, as we talked about all sorts of metals some time ago, I should now give you a lecture about stones and earths of all kinds, which are equally valuable, and much more common, than metals.

G. Pray do, Sir.

H. I shall be very glad to hear it.

T. Well then. In the first place, the ground we tread upon, to as great a depth as it has been dug, consists for the most part of matter of various appearance and hardness, called by the general name of *earths*. In common language, indeed, only the soft and powdery substances are so named, while the hard and solid are called *stone* or *rock*; but chymists use the same term for all; as, in fact, earth is only crum-

bled stone, and stone only consolidated earth.

H. What!—has the mould of my garden ever been stone?

T. The black earth or mould which covers the surface wherever plants grow; consists mostly of parts of rotted vegetables, such as stalks, leaves and roots, mixed with sand or loose clay; but this only reaches a little way; and beneath it you always come to a bed of gravel, or clay, or stone of some kind. Now these earths and stones are distinguished into several species, but principally into three, the properties of which make them useful to man for very different purposes, and are therefore very well worth knowing. As you began with asking me about lime, I shall first mention that class of earths from which it is obtained. These have derived their name of *calcareous* from this very circumstance, *calx* being lime, in Latin;

and lime is got from them all in the same way, by burning them in a strong fire. There are many kinds of calcareous earths. One of them is *marble*; you know what that is?

G. O yes! Our parlour chimney-piece and hearth are marble.

H. And so are the monuments in the church.

T. True. There are various kinds of it; white, black, yellow, gray, mottled and veined with different colours; but all of them are hard and heavy stones, admitting a fine polish, on which account they are much used in ornamental works.

G. I think statues are made of it.

T. Yes; and where it is plentiful, columns, and porticoes, and sometimes whole buildings. Marble is the luxury of architecture.

H. Where does marble come from?

T. From a great many countries.

Great Britain produces some, but mostly of inferior kinds. What we use chiefly comes from Italy. The Greek islands yield some fine sorts. That of Paros is of ancient fame for whiteness and purity, and the finest antique statues have been made of Parian marble.

H. I suppose black marble will not burn into white lime.

T. Yes, it will. A violent heat will expel most of the colouring matter of marbles, and make them white. *Chalk* is another kind of calcareous earth. This is of a much softer consistence than marble; being easily cut with a knife, and marking things on which it is rubbed. It is found in great beds in the earth; and in some parts of England whole hills are composed of it.

G. Are chalk and whiting the same?

T. Whiting is made of the finer and purer particles of chalk washed

out from the rest, and then dried in lumps. This, you know, is quite soft and crumbly. There are, besides, a great variety of stones in the earth harder than chalk, but softer than marble, which will burn to lime, and are therefore called *lime-stones*. These differ much in colour and other properties, and accordingly furnish lime of different qualities. Whole ridges of mountains in various parts are composed of limestone, and it is found plentifully in most of the hilly counties of England, to the great advantage of the inhabitants.

G. Will not oyster-shells burn into lime? I think I have heard of oyster-shell lime.

T. They will; and this is another source of calcareous earth. The shells of all animals, both land and sea, as oysters, muscles, cockles, crabs, lobsters, snails, and the like, and also egg-shells of all kinds, consist of this

earth; and so does coral, which is formed by insects under the sea, and is very abundant in some countries. Vast quantities of shells are often found deep in the earth, in the midst of chalk and lime-stone beds; whence some have supposed that all calcareous earth is originally an animal production.

H. But where could animals enow ever have lived to make mountains of their shells?

T. That, indeed, I cannot answer. But there are sufficient proofs that our world must long have existed in a very different state from the present. Well—but beside these purer calcareous earths, it is very frequently found mingled in different proportions with other earths. Thus *marle*, which is so much used in manuring land, and of which there are a great many kinds, all consists of calcareous earth, united with clay and sand; and the more of this earth

it contains, the richer manure it generally makes.

G. Is there any way of discovering it when it is mixed in this manner with other things?

T. Yes—there is an easy and sure method of discovering the smallest portion of it. All the varieties of calcareous earth that I have mentioned, have the property of dissolving in acids, and effervescing with them; that is, they bubble and hiss when acids are poured upon them. You may readily try this at any time with a piece of chalk or an oyster-shell.

G. I will pour some vinegar upon an oyster-shell as soon as I get home. But now I think of it, I have often done so in eating oysters, and I never observed it to hiss or bubble.

T. Vinegar is not an acid strong enough to act upon a thing so solid as a shell. But aqua fortis, or spirit

of salt, will do it at once; and persons who examine the nature of fossils always travel with a bottle of one of these acids, by way of a test of calcareous earth. Your vinegar will answer with chalk or whiting. This property of dissolving in acids, and what is called neutralising them, or taking away their sourness, has caused many of the calcareous earths to be used in medicine. You know that sometimes our food turns very sour upon the stomach, and occasions the pain called heart-burn, and other uneasy symptoms. In these cases it is common to give chalk or powdered shells, or other things of this kind, which afford relief, by neutralizing the acid.

G. I suppose, then, *magnesia* is something of this sort, for I have often seen it given to my little sister when they said her stomach was out of order.

T. It is; but, though *magnesia* has some properties in common with calcare-

ous earths, it possesses others that are peculiar to itself.

G. Pray what are the other uses of these earths?

T. Such of them as are hard stone, as the marbles and many of the limestones, are used for the same purposes as other stones. But their great use is in the form of lime, which is a substance of many curious properties that I will now explain to you. When fresh burnt it is called *quicklime*, on account of the heat and life, as it were, which it possesses. Have you ever seen a lump put into water?

G. Yes, I have.

T. Were you not much surprised to see it swell and crack to pieces, with a hissing noise and a great smoke and heat?

G. I was, indeed. But what is the cause of this?—how can cold water occasion so much heat?

T. I will tell you. The strong heat to which calcareous earth is exposed in making it lime, expels all the water it contained (for all earths, as well as almost every thing else, naturally contain water) and also a quantity of a peculiar kind of air which was united with it. If water be now added to this quicklime, it is drunk in again with such rapidity, as to crack and break the lime to pieces. At the same time, a great heat is occasioned by the water combining with the lime, and this makes itself sensible by its effects, burning all the things that it touches, and turning part of the water to steam. This operation is called slacking of lime. The water in which lime is slacked dissolves a part of it, and acquires a very pungent harsh taste: this is used in medicine under the name of lime-water. If instead of soaking quicklime in water, it is exposed for some time to the air, it attracts moisture slowly, and by degrees falls to powder,

without much heat or disturbance. But whether lime be slacked in water or air, it does not at first return to the state in which it was before, since it still remains deprived of its air; and, on that account, is still pungent and caustic. At length, however, it recovers this also from the atmosphere, and is then mild calcareous earth as at first. Now it is upon some of these circumstances that the utility of lime depends. In the first place, its burning and corroding quality makes it useful to the tanner, in loosening all the hair from the hides, and destroying the flesh and fat that adhered to them. And so in various other trades it is used as a great cleanser and purifier.

H. I have a thought come into my head. When it is laid upon the ground I suppose its use must be to burn up the weeds.

T. True—that is part of its use.

G. But it must burn up the good grass and corn too.

T. Properly objected. But the case is, that the farmer does not sow his seeds till the lime is rendered mild by exposure to the air and weather, and is well mixed with the soil. And even then it is reckoned a hot and forcing manure, chiefly fit for cold and wet lands. The principal use of lime, however, is as an ingredient in *mortar*. This, you know, is the cement by which bricks and stones are held together in building. It is made of fresh slacked lime and a proportion of sand well mixed together; and, when used for plastering walls, some chopped hair is put into it. The lime binds with the other ingredients; and in length of time, the mortar, if well made, becomes as hard or harder than stone itself.

G. I have heard of the mortar in very old buildings being harder and stronger than any made at present.

T. That is only on account of its age,

Burning lime and making mortar are as well understood now as ever; but in order to have it excellent, the lime should be of a good quality, and thoroughly burnt. Some sorts of lime have the property of making mortar which will harden under water, whence it is much valued for bridges, locks, wharfs, and the like.

G. Pray is not plaster of Paris a kind of lime? I know it will become hard by only mixing water with it, for I have used it to make casts of.

T. The powder you call plaster of Paris is made of an earth named *gypsum*, of which there are several kinds. *Alabaster* is a stone of this sort, and hard enough to be used like marble. The gypseous earths are of the calcareous kind, but they have naturally a portion of acid united with them, whence they will not effervesce on having acid poured on them. But they are distinguished

by the property, that after being calcinated or burned in the fire, and reduced to powder, they will set into a solid body by the addition of water alone. This makes them very useful for ornamental plasters, that are to receive a form or impression, such as the stucco for the ceiling of rooms.

Well—we have said enough about calcareous earths; now to another class, the *argillaceous*.

G. I think I know what those are. *Argilla* is *Latin* for *clay*.

T. True; and they are also called *clayey* earths. In general, these earths are of a soft texture and a sort of greasy feel; but they are peculiarly distinguished by the property of becoming sticky on being tempered with water, so that they may be drawn out and worked into form like a paste. Have you ever, when you were a little boy, made a clay house?

G. Yes, I have.

T. Then you well know the manner in which clay is tempered, and worked for this purpose.

H. Yes—and I remember helping to make little pots and mugs of clay.

T. Then you imitated the potter's trade; for all utensils of earthen ware are made of clays either pure or mixed. This is one of the oldest arts among mankind, and one of the most useful. They furnish materials for building, too; for bricks and tiles are made of these earths. But in order to be fit for these purposes, it is necessary that clay should not only be soft and ductile while it is forming, but capable of being hardened afterwards. And this it is, by the assistance of fire. Pottery ware and bricks are burned with a strong heat in kilns, by which they acquire a hardness equal to that of the hardest stone.

G. I think I have heard of bricks

being baked by the sun's heat alone in very hot countries.

T. True; and they may serve for building in climates where rain scarcely ever falls; but heavy showers would wash them away. Fire seems to change the nature of clays; for after they have undergone its operation, they become incapable of returning of themselves to a soft and ductile state. You might steep brick dust or pounded pots in water ever so long without making it hold together in the least.

G. I suppose there are many kinds of clays?

T. There are. Argillaceous earths differ greatly from each other in colour, purity, and other qualities. Some are perfectly white, as that of which tobacco-pipes are made. Others are blue, brown yellow, and in short of all hues, which they owe to mixtures of decaying vegetable substances or metals. Those

which burn red contain a portion of iron. No clays are found perfectly pure ; but they are mixed with more or less of other earths. The common brick clays contain a large proportion of sand, which often makes them crumbly and perishable. In general, the finest earthen ware is made of the purest and whitest clays ; but other matters are mixed in order to harden and strengthen them. Thus *porcelain* or *china* is made with a clayey earth mixed with a stone of a vitrifiable nature, that is, which may be melted into glass ; and the fine pottery called *queen's ware* is a mixture of tobacco-pipe clay, and flints burned and powdered. Common stone *ware* is a coarse mixture of this sort. Some species of pottery are made with mixtures of burned and unburned clay ; the former, as I told you before, being incapable of becoming soft again with water like a natural clay.

H. Are clays of no other use than to make pottery of?

T. Yes, the richest soils are those which have a proportion of clay; and marle which I have already mentioned as a manure, generally contains a good deal of it. Then clay has the property of absorbing oil or grease, whence some kinds of it are used like soap for cleaning clothes. The substance called *Fuller's earth* is a mixed earth of the argillaceous kind: and its use in taking out the oil which naturally adheres to wool is so great, that it has been one cause of the superiority of our woollen cloths.

H. Then I suppose it is found in England?

T. Yes. There are pits of the best kind of it near Woburn in Bedfordshire, and Nutfield in Surrey. The different kinds of slate, too, are stones of the

argillaceous class; and very useful ones, for covering houses, and other purposes.

H. Are writing slates like the slates used for covering houses?

T. Yes; but their superior blackness and smoothness make them show better the marks of the pencil.

G. You have mentioned something of sand and flints, but you have not told us what sort of earths they are.

T. I reserved that till I spoke of the third great class of earths. This is the *siliceous* class, so named from *silex*, which is Latin for a flint-stone. They have also been called *vitriifiable* earths, because they are the principal ingredient in glass, named in Latin *vitrum*.

G. I have heard of flint-glass.

T. Yes—but neither flint, nor any other of the kind, will make glass, even by the strongest heat, without some addition; but this we will speak of by and

by. I shall now tell you the principal properties of these earths. They are all very hard, and will strike fire with steel, when in a mass large enough for the stroke. They mostly run into particular shapes, with sharp angles and points, and have a certain degree of transparency; which has made them also be called *crystalline* earths. They do not in the least soften with water, like clays; nor are they affected by acids, nor do they burn to lime, like the calcareous earths. As to the different kinds of them, *flint* has already been mentioned. It is a very common production in some parts, and is generally met with in pebbles or round lumps, forming pebbles in gravel beds, and often almost entirely covering the surface of ploughed fields.

H. But do they not hinder the corn from growing?

T. The corn, to be sure, cannot take root upon them, but I believe it has

been found that the protection they afford to the young plants which grow under them, is more than equal to the harm they do by taking up room. Flints are also frequently found imbedded in chalk under the ground. Those used in the Staffordshire potteries chiefly come from the chalk pits near Gravesend. So much for flints. You have seen white pebbles, which are semi-transparent, and when broken resemble white sugar-candy. They are common on the sea-shore, and beds of rivers.

H. O, yes. We call them fire-stones. When they are rubbed together in the dark they send out great flashes of light, and have a particular smell.

T. True. The proper name of these is *quartz*. It is found in large quantities in the earth, and the ores of metals are often imbedded in it. Sometimes it is perfectly transparent, and then it is called *crystal*. Some of these crystals

shoot into exact mathematical figures, and because many salts do the same, and are also transparent, they are called the *crystals* of such or such a salt.

G. Is not fine glass called crystal, too?

T. It is called so by way of simile; thus we say of a thing, "it is as clear as crystal." But the only true crystal is an earth of the kind I have been describing. Well—now we come to *sand*; for this is properly only quartz in a powdery state. If you examine the grains of sand singly, or look at them with a magnifying glass, you will find them all either entirely or partly transparent; and in some of the white shining sands the grains are all little bright crystals.

H. But most sand is brown or yellowish.

T. That is owing to some mixture generally of the metallic kind. I believe I once told you that all sands were

supposed to contain a small portion of gold. It is more certain that many of them contain iron.

G. But what could have brought this quartz and crystal into powder, so as to have produced all the sand in the world?

T. That is not very easy to determine. On the seashore, however, the incessant rolling of the pebbles by the waves is enough in time to grind them to powder; and there is reason to believe that the greatest part of what is now dry land, was once sea, which may account for the vast beds of sand met with inland.

G. I have seen some stone so soft that one might crumble it between one's fingers, and then it seemed to turn to sand.

T. There are several of this kind, more or less solid, which are chiefly composed of sand conglutinated by some natural cement. Such are called

sand-stone, or *freestone*, and are used for various purposes, in building, making grindstones, and the like, according to their hardness.

H. Pray what are the common pebbles that the streets are paved with? I am sure they strike fire enough with horses' shoes.

T. They are stones of the siliceous kind, either pure or mixed with other earths. One of the hardest and best for this purpose is called *granite*, which is of various kinds and colours, but always consists of grains of different siliceous stones cemented together. The streets of London are paved with granite brought from Scotland. In some other stones, these bits of different earths dispersed through the cement are so large, as to look like plums in a pudding; whence they have obtained the name of *pudding-stones*.

G. I think there is a kind of stones

that you have not yet mentioned—precious stones.

T. These, too, are mostly siliceous; but some even of the hardest and most valuable are argillaceous in their nature, though possessing none of the external properties of clay. The opaque and half-transparent precious stones, such as jasper, agate, cornelian, and lapis lazuli, are engraved upon for seal-stones; the more beautiful and transparent ones, as ruby, emerald, sapphire, topaz, which go by the name of gems, are generally only cut and polished, and worn in rings, ear-rings, necklaces, and the like.

G. Diamond, no doubt, is one of them.

T. So it has commonly been reckoned, and the purest of all; but late experiments have shown, that though it is the hardest body in nature, it may be totally dispersed into vapour by a strong fire; so that mineralogists will

now hardly allow it to be a stone at all, but class it among inflammable substances. The precious stones above mentioned owe their different colours chiefly to some metallic mixture. They are in general extremely hard, so as to cut glass, and one another; but diamonds will cut all the rest.

T. Yes; and in this rarity consists the greatest part of their value. They are, indeed, beautiful objects; but the figure they make in proportion to their expense is so very small, that their high price may be reckoned one of the principal follies among mankind. What proportion can there possibly be between the real worth of a glittering stone as big as a hazel-nut, and a magnificent house and gardens, or a large tract of country covered with noble woods and rich meadows and corn-fields? And as to the mere glitter, a large lustre of cut glass has an in-

finitely greater effect on the eye than all the jewels of a foreign prince.

G. Will you please to tell us now how glass is made?

T. Willingly. The base of it is, as I said before, some earth of the siliceous class. Those commonly used are flint and sand. Flint is first burnt or calcined, which makes it quite white, like enamel; and it is then powdered. This is the material sometimes used for some very white glasses; but sand is that commonly preferred, as being already in a powdery form. The white crystalline sands are used for fine glass; the brown or yellow for the common sort. As these earths will not melt of themselves, the addition in making glass is somewhat that promotes their fusion. Various things will do this; but what is generally used is an alkaline salt, obtained from the ashes of burnt vegetables. Of this there are

several kinds, as pot-ash, pearl-ash, barrilla, and kelp. The salt is mixed with the sand in a certain proportion, and the mixture then exposed in earthen pots to a violent heat, till it is thoroughly melted. The mass is then cooled till it is nearly of the consistence of dough, and in this state it is fashioned by blowing and the use of shears and other instruments. You must see this done some time, for it is one of the most curious and pleasing of all manufactures ; and it is not possible to form an idea of the ease and dexterity with which glass is wrought, without an actual view.

H. I should like very much to see it, indeed.

G. Where is glass made in this country ?

T. In many places. Some of the finest in London ; but the coarser kinds generally where coals are cheap ; as at

Newcastle and its neighbourhood, in Lancashire, at Stourbridge, Bristol, and in South Wales. I should have told you, however, that in our finest and most brilliant glass, a quantity of the calx of lead is put, which vitrifies with the other ingredients, and gives the glass more firmness and density. The blue, yellow, and red glasses are coloured with the calxes of other metals. As to the common green glass, it is made with an alkali that has a good deal of calcareous earth remaining with the ashes of the plant. But to understand all the different circumstances of glass-making, one must have a thorough knowledge of chemistry.

G. I think making of glass is one of the finest inventions of human skill.

T. It is perhaps not of that capital importance that some other arts possess; but it has been a great addition to the comfort and pleasure of life in

many ways. Nothing makes such clean and agreeable vessels as glass, which has the quality of not being corroded by any kind of liquor, as well as that of showing its contents by its transparency. Hence it is greatly preferable to the most precious metals for drinking out of; and for the same reasons it is preferred to every other material for chemical utensils, where the heat to be employed is not strong enough to melt it.

H. Then, glass windows.

T. Ay; that is a very material comfort in a climate like ours, where we so often wish to let in the light, and keep out the cold wind and rain. What could be more gloomy than to sit in the dark, or with no other light than came in through small holes covered with oiled paper or bladder, unable to see any thing passing without doors! Yet this must have been the case with the

most sumptuous palaces before the invention of window-glass, which was a good deal later than that of bottles and drinking-glasses.

H. I think looking-glasses are very beautiful.

T. They are indeed very elegant pieces of furniture, and very costly too. The art of casting glass into large plates, big enough to reach almost from the bottom to the top of a room, is but lately introduced into this country from France. But the most splendid and brilliant manner of employing glass is in lustres and chandeliers, hung round with drops cut so as to reflect the light with all the colours of the rainbow. Some of the shops in London filled with these articles, appear to realize all the wonders of an enchanted palace in the Arabian Nights' Entertainments.

G. But are not spectacles and spying-glasses more useful than all these?

T. I did not mean to pass them over, I assure you. By the curious invention of optical glasses of various kinds, not only the natural defects of the sight have been remedied, and old age has been in some measure lightened of one of its calamities, but the sense of seeing has been wonderfully extended. The telescope has brought distant objects within our view, while the microscope has given us a clear survey of near objects too minute for our unassisted eyes. By means of both, some of the brightest discoveries of the moderns have been made ; so that glass has proved not less admirable in promoting science, than in contributing to splendour and convenience. Well—I don't know that I have any thing more at present to say relative to the class of earths. We have gone through the principal circumstances belonging to their three great divisions, the *calcareous*, *argillaceous* and *sili-*

ceous. You will remember, however, that most of the earths and stones offered by nature are not in any one of these kinds perfectly pure, but contain a mixture of one or both the others. There is not a pebble that you can pick up, which would not exercise the skill of a mineralogist fully to ascertain its properties, and the materials of its composition. So inexhaustible is nature !

TWENTY-THIRD EVENING.

SHOW AND USE ;

OR,

THE TWO PRESENTS.

ONE morning, Lord Richmore, coming down to breakfast, was welcomed with the tidings that his favourite mare Miss Slim, had brought a foal, and also, that a she-ass, kept for his lady's use as

a milker, had dropped a young one. His lordship smiled at the inequality of the presents nature had made him. "As for the foal (said he to the groom), that, you know, has been long promised to my neighbour, Mr. Scamper. For young Balaam, you may dispose of him as you please." The groom thanked his lordship, and said he would then give him to Isaac the woodman.

In due time, Miss Slim's foal, which was the son of a noted racer, was taken to Squire Scamper's, who received him with great delight, and out of compliment to the donor, named him *Young Peer*. He was brought up with at least as much care and tenderness as the Squire's own children—kept in a warm stable, fed with the best of corn and hay, duly dressed and regularly exercised. As he grew up, he gave tokens of great beauty. His colour was bright bay, with a white star on his forehead ;

his coat was fine, and shone like silk ; and every point about him seemed to promise perfection of shape and make. Every body admired him as the completest colt that could be seen.

So fine a creature could not be destined to any useful employment. After he had passed his third year, he was sent to Newmarket to be trained for the turf, and a groom was appointed to the care of him alone. His master, who could not well afford the expense, saved part of it by turning off a domestic tutor whom he kept for the education of his sons, and was content with sending them to the curate of the parish.

At four years old, Young Peer started for a subscription purse, and came in second out of a number of competitors. Soon after, he won a country plate, and filled his master with joy and triumph. The Squire now turned all his attention to the turf, made matches, betted high,

and was at first tolerably successful. At length having ventured all the money he could raise upon one grand match, Young Peer ran on the wrong side of the post, was distanced, and the Squire ruined.

Meantime young Balaam went into Isaac's possession, where he had a very different training. He was left to pick up his living as he could in the lanes and commons; and on the coldest days in winter he had no other shelter than the lee-side of the cottage, out of which he was often glad to pluck the thatch for a subsistence. As soon as ever he was able to bear a rider, Isaac's children got upon him, sometimes two or three at once; and if he did not go to their mind, a broomstick or bunch of furze was freely applied to his hide. Nevertheless he grew up, as the children themselves did, strong and healthy; and though he was

rather bare on the ribs, his shape was good, and his limbs vigorous.

It was not long before his master thought of putting him to some use; so taking him to the wood, he fastened a load of faggots on his back, and sent him with his son Tom to the next town. Tom sold the faggots, and mounting upon Balaam, rode him home. As Isaac could get plenty of faggots and chips, he found it a profitable trade to send them for daily sale upon Balaam's back. Having a little garden, which from the barrenness of the soil yielded him nothing of value, he bethought him of loading Balaam back from town with dung for manure. Though all he could bring at once was contained in two small panniers, yet this in time amounted to enough to mend the soil of his whole garden, so that he grew very good cabbages and potatoes, to the great relief

of his family. Isaac being now sensible of the value of his ass, began to treat him with more attention. He got a small stack of rushy hay for his winter fodder, and with his own hands built him a little shed of boughs and mud, in order to shelter him from the bad weather. He would not suffer any of his family to use Balaam ill, and after his daily journeys he was allowed to ramble at pleasure. He was now and then cleaned and dressed, and upon the whole, made a reputable figure. Isaac took in more land from the waste, so that by degrees he became a little farmer, and kept a horse and cart, a cow, and two or three pigs. This made him quite a rich man, but he had always the gratitude to impute his prosperity to the good services of Balaam, the groom's present; while the Squire cursed Young Peer as the cause of his ruin, and many a time wished that his lordship had kept his dainty gift to himself.

THE CRUCIFORM-FLOWERED PLANTS.

Tutor—Gorge—Harry.

George. How rich yon field looks with its yellow flowers; I wonder what they can be.

Tutor. Suppose you go and see if you can find it out; and bring a stalk of the flowers with you.

G. (returning.) I know now—they are turnips.

T. I thought you could make it out when you came near them. These turnips are left to seed, which is the reason why you see them run to flower. Commonly they are pulled up sooner.

Harry. I should not have thought a turnip had so sweet a flower.

G. I think I have smelt others like them. Pray, Sir, what class of plants do they belong to?

T. To a very numerous one, with which it is worth your while to get acquainted. Let us sit down and examine them. The petal, you observe, consists of four flat leaves set opposite to each other, or cross-wise. From this circumstance the flowers have been called *cruciform*. As most plants with flowers of this kind bear their seeds in pods, they have likewise been called the *siliquose* plants, *siliqua* being the Latin for a pod.

G. But the papilionaceous flowers bear pods too.

T. True; and therefore the name is not a good one. Now pull off the petals one by one. You see they are fastened by long claws within the flower-cup. Now count the chives.

H. There are six.

G. But they are not all of the same length—two are much shorter than the rest.

T. Well observed. It is from this that Linnæus has formed a particular class for the whole tribe, which he calls *tetradynamia*, a word implying *four powers*, or the *power of four*, as if the four longer chives were more perfect and efficacious than the two shorter; which, however, we do not know to be the case. This superior length of four chives is conspicuous in most plants of this tribe, but not in all. They have, however, other resemblances which are sufficient to constitute them a natural family; and accordingly all botanists have made them such.

The flowers, as I have said, have in all of them four petals placed cross-wise. The calyx also consists of four oblong and hollow leaves. There is a single pistil, standing upon a seed-bud, which turns either into a long pod, or a short round one called a pouch; and hence are formed the two great branches of

the family, the podded and the pouched. The seed-vessel has two valves, or external openings, with a partition between. The seeds are small and roundish, attached alternately to both sutures or joinings of the valves.

Do you observe all these circumstances?

G. and H. We do.

T. You shall examine them more minutely in a larger plant of the kind. Further, almost all these plants have somewhat of a biting taste, and also a disagreeable smell in their leaves, especially when decayed. A turnip-field, you know, smells but indifferently: and cabbage, which is one of this class, is apt to be remarkably offensive.

H. Yes—there is nothing worse than rotten cabbage-leaves.

G. And the very water in which they are boiled is enough to scent a whole house.

T. The flowers, however, of almost all the family are fragrant, and some remarkably so. What do you think of wall-flowers, and stocks?

H. What, are they of this kind?

T. Yes—and so is candy-tuft, and rocket.

H. Then they are not to be despised.

T. No—and especially as not one of the whole class, I believe, is poisonous; but, on the contrary, many of them afford good food for man and beast. Shall I tell you about the principal of them?

G. Pray do, Sir.

T. The pungency of taste which so many of them possess, has caused them to be used for salad herbs. Thus we have cress, water-cress, and mustard; to which might be added many more which grow wild, as lady-smock, wild-rocket, hedge-mustard, and jack-by-the-hedge, or sauce-alone. Mustard, you

know, is also greatly used for its seeds, the powder or flower of which made into a sort of paste with salt and water, is eaten with many kinds of meat. Rape-seeds are very similar to them, and from both an oil is pressed out, of the mild or tasteless kind, as it is likewise from cole-seed, another product of this class, Scurvy-grass, which is a pungent plant of this family, growing by the sea-side, has obtained its name from being a remedy for the scurvy. Then there is horse-radish, with the root of which I am sure you are well acquainted, as a companion to roast-beef. Common radish too, is a plant of this kind, which has a good deal of pungency. One sort of it has a root like a turnip, which brings it near in quality to the turnip itself. This last plant, though affording a sweet and mild nutriment, has naturally a degree of pungency and rankness.

G. That, I suppose, is the reason

why turnipy milk and butter have such a strong taste.

T. It is.

H. Then why do they feed cows with it?

T. In this case as in many others, quality is sacrificed to quantity. But the better use of turnips to the farmer is to fatten sheep and cattle. By its assistance he is enabled to keep many more of these animals than he could find grass or hay for; and the culture of turnips prepares his land for grain as well, or better, than could be done by letting it lie quite fallow. Turnip-husbandry, as it is called, is one of the capital modern improvements of agriculture.

G. I think I have heard that Norfolk is famous for it.

T. It is so. That county abounds in light sandy lands, which are peculiarly suitable to turnips. But they are now grown in many parts of the kingdom

besides. Well—but we must say somewhat more about cabbage, an article of food of very long standing. The original species of this is a sea-side plant, but cultivation has produced a great number of varieties well known in our gardens, as white and red cabbage, kale, colewort, brocoli, borecole, and cauliflower.

H. But the flower of cauliflower does not seem at all like that of cabbage or turnip.

T. The white head, called its flower, is not properly so, but consists of a cluster of imperfect buds. If they are left to grow for seed, they throw out some spikes of yellow flowers like common cabbage. Brocoli heads are of the same kind. As to the head of white or red cabbage, it consists of a vast number of leaves closing round each other, by which the innermost are prevented from expanding, and remain white on account of the exclusion of the light and air.

This part, you know, is most valued for food. In some countries they cut cabbage heads into quarters, and make them undergo a kind of acid fermentation; after which they are salted and preserved for winter food under the name of sour krout.

G. Cattle, too, are sometimes fed with cabbage, I believe.

T. Yes, and large fields of them are cultivated for that purpose. They succeed best in stiff clayey soils, where they sometimes grow to an enormous bigness. They are given to milch kine as well as to fattening cattle.

G. Do not they give a bad taste to the milk?

T. They are apt to do so unless great care is taken to pick off all the decayed leaves.

Coleworts, which are a smaller sort of cabbage, are sometimes grown for feeding sheep and cattle. I think I have

now mentioned most of the useful plants of this family, which you see are numerous and important. They both yield beef and mutton, and the sauce to them. But many of the species are troublesome weeds. You see how yonder corn is overrun with yellow flowers.

G. Yes: they are as thick as if they had been sown.

T. They are of this family, and called charlock, or wild mustard, or corn kale, which, indeed, are not all exactly the same things, though nearly resembling. These produce such plenty of seeds, that it is very difficult to clear a field of them, if once they are suffered to grow till the seeds ripen. An extremely common weed in gardens and by road-sides is shepherd's-purse, which is a very good specimen of the pouch-bearing plants of this tribe, its seed-vessels being exactly the figure of a heart. Lady-smock is often so abundant a weed in wet mea-

dows as to make them all over white with their flowers. Some call this plant cuckoo-flower, because its flowering is about the same time with the first appearance of that bird in the spring.

G. I remember some pretty lines in a song about spring, in which lady-smock is mentioned:—

When daisies pied, and violets blue,
And lady-smocks all silver white;
And cuckoo-buds of yellow hue,
Do paint the meadows with delight.

T. They are Shakspeare's. You see he gives the name of cuckoo-bud to some other flower, a yellow one, which appears at the same season. But still earlier than this time, walls and hedge-banks are enlivened by a very small white flower, called whitlow-grass, which is one of the tribe.

H. Is it easy to distinguish the plants of this family from one another?

T. Not very easy; for the general similarity of the flowers is so great, that little distinction can be drawn from them. The marks of the species are chiefly taken from the form and manner of growth of the seed vessel, and we will examine some of them by the descriptions in a book of botany. There is one very remarkable seed vessel, which probably you have observed in the garden. It is a perfectly round large flat pouch, which, after it has shed its seed, remains on the stalk and looks like a thin white bladder. The plant bearing it is commonly called honesty.

H. O, I know it very well. It is put into winter flower-pots.

T. True. So much, then, for the tetradynamious or cruciform-flowered plants. You cannot well mistake them for any other class, if you remark the six chives, four of them, generally, but not always, longer than the two others;

the single pistil changing either into a long pod or a round pouch containing the seeds; the four opposite petals of the flower, and four leaves of the calyx. You may safely make a salad of the young leaves wherever you find them: the worst they can do to you is to bite your tongue.

THE NATIVE VILLAGE.

A DRAMA.

Scene—*A scattered Village almost hidden with Trees.*

Enter HARFORD and BEAUMONT.

Harford. THERE is the place. This is the green on which I played many a day with my companions; there are the tall trees that I have so often climbed for birds' nests; and that is the pond where I used to sail my walnut-shell boats. What a crowd of mixed sensa-

tion rush on my mind ! What pleasure, and what regret ! Yes, there is somewhat in our native soil that affects the mind in a manner different from every other scene in nature.

Beaumont. With you it must be merely the *place* ; for I think you can have no attachments of friendship or affection in it, considering your long absence, and the removal of all your family.

Harf. No, I have no family connexions, and indeed can scarcely be said ever to have had any ; for, as you know, I was almost utterly neglected after the death of my father and mother, and while all my elder brothers and sisters were dispersed to one part or another, and the little remaining property was disposed of, I was left with the poor people who nursed me, to be brought up just as they thought proper ; and the little pension that was paid for me, entirely ceased after a few years.

Beaum. Then how were you afterwards supported?

Harf. The honest couple who had the care of me continued to treat me with the greatest kindness; and poor as they were not only maintained me as a child of their own, but did all in their power to procure me advantages more suited to my birth, than my deserted situation. With the assistance of the worthy clergyman of the parish, they put me to a day-school in the village, clothed me decently, and being themselves sober religious persons, took care to keep me from vice. The obligations I am under to them will, I hope, never be effaced from my memory, and it is on their account alone that I have undertaken this journey.

Beaum. How long did you continue with them?

Harf. Till I was thirteen. I then felt an irresistible desire to fight for my country; and learning by accident that

a distant relation of our family was a captain of a man of war, I took leave of my worthy benefactors, and set off to the sea-port where he lay, the good people furnishing me in the best manner they were able with necessaries for the journey. I shall never forget the tenderness with which they parted with me. It was, if possible, beyond that of the kindest parents. You know my subsequent adventures, from the time of my becoming a midshipman, to my present state of first lieutenant of the *Britannia*. Though it is now fifteen years since my departure, I feel my affection for these good folks stronger than ever, and could not be easy without taking the first opportunity of seeing them.

Beaum. It is a great chance if they are both living.

Harf. I happened to hear by a young man of the village, not long since, that

they were ; but I believe much reduced in their circumstances.

Beaum. Whereabouts did they live?

Harf. Just at the turning of this corner. But what's this—I can't find the house—Yet I am sure I have not forgot the situation. Surely it must be pulled down ! Oh ! my dear old friends, what can have become of you ?

Beaum. You had best ask that little girl.

Harf. Hark ye, my dear ! do you know one John Beech, of this place ?

Girl. What old John Beech ? O yes, very well, and Mary Beech ! too.

Harf. Where do they live ?

Girl. A little further on in the lane.

Harf. Did they not once live hereabouts ?

Girl. Yes, till farmer Tything pulled the house down to make his hop-garden.

Harf. Come with me to show me the place, and I'll give you a penny.

Girl. Yes, that I will. (*They walk on*) There—that low thatched house—and there's Mary spinning at the door.

Harf. There, my dear (*gives money, and the girl goes away*). How my heart beats! Surely that cannot be my nurse! Yes, I recollect her now; but how very old and sickly she looks!

Beaum. Fifteen years in her life, with care and hardship, must go a great way in breaking her down.

Harf. (*going to the cottage door*). Good morning, good woman; can you give my companion and me something to drink? We are very thirsty with walking this hot day.

Mary Beech. I have nothing better than water, Sir; but if you please to accept of that, I will bring you some.

Beaum. Thank you—we will trouble you for some.

Mary. Will you please to walk in out of the sun, gentlemen; ours is a very

poor house indeed ; but I will find you a seat to sit down on, while I draw the water.

Harf. (to Beaumont.) The same good creature as ever ! let us go in.

Scene II.—*The Inside of the Cottage. An old Man sitting by the Hearth.*

Beaum. We have made bold, friend, to trouble your wife for a little water.

John Beech. Sit down—sit down—gentlemen. I would get up to give you my chair, but I have the misfortune to be lame, and am almost blind too.

Harf. Lame and blind ! Oh Beaumont ! (*aside*)

John. Aye, Sir, old age will come on ; and, God knows, we have very little means to fence against it.

Beaum. What, have you nothing but your labour to subsist on ?

John. We made that do, Sir, as long as we could ; but now I am hardly capa-

ble of doing any thing, and my poor wife can earn very little by spinning, so we have been forced at last to apply to the parish.

Harf. To the parish! Well, I hope they consider the services of your better days, and provide for you comfortably.

John. Alas, Sir; I am not much given to complain; but what can two shillings a week do in these hard times?

Harf. Little enough, indeed! And is that all they allow you?

John. It is, Sir; and we are not to have that much longer, for they say we must come into the workhouse.

Mary (*entering with the water.* Here, gentlemen, the jug is clean, if you can drink out of it.

Harf. The workhouse, do you say?

Mary. Yes, gentlemen—that makes my poor husband so uneasy—that we should come in our old days to die in a workhouse. We have lived better, I as-

sure you—but we were turned out of our little farm by the great farmer near the church; and since that time we have been growing poorer and poorer, and weaker and weaker, so that we have nothing to help ourselves with.

John (sobbing.) To die in a parish workhouse—I can hardly bear the thought of it. But God knows best, and we must submit.

Harf. But, my good people, have you no children or friends to assist you?

John. Our children, Sir, are all dead except one that is settled a long way off, and as poor as we are.

Beaum. But surely, my friends, such decent people as you seem to be, must have somebody to protect you.

Mary. No, Sir—we know nobody but our neighbours, and they think the workhouse good enough for the poor.

Harf. Pray, was there not a family of Harfords once in this village?

John. Yes, Sir, a long while ago—but they are all dead and gone, or else far enough from this place.

Mary. Aye, Sir, the youngest of them and the finest child among them, that I'll say for him, was nursed in our house when we lived on the old spot near the green. He was with us till he was thirteen and a sweet-behaved boy he was—I loved him as well as ever I did any of my own children.

Harf. What became of him?

John. Why, Sir, he was a fine bold-spirited boy, though the best tempered creature in the world—so last war he would be a sailor, and fight the French and Spaniards, and away he went, nobody could stop him, and we have never heard a word of him since.

Mary. Aye, he is dead or killed, I warrant—for if he was alive and in England, I am sure nothing would keep him from coming to see his poor daddy and

mammy as he used to call us. Many a night have I lain awake thinking of him !

Harf. (to *Beaum.*) I can hold no longer.

Beaum. (to *him.*) Restrain yourself awhile. Well, my friends, in return for your kindness I will tell you some news that will please you. This same Harford, Edward Harford

Mary. Aye, that was his name—my dear Ned—What of him, Sir, is he living?

John. Let the gentleman speak, my dear.

Beaum. Ned Harford is now alive and well, and a lieutenant in his majesty's navy, and as brave an officer as any in the service.

John. I hope you do not jest with us Sir.

Beaum. I do not upon my honour.

Mary. O thank God—thank God—if I could but see him !

John. Aye, I wish for nothing more before I die.

Harf. Here he is—here he is—My dearest best benefactors! Here I am, to pay some of the great debt of kindness I owe you. (*Clasps Mary round the neck, and kisses her.*)

Mary. What—this gentleman my Ned! Aye, it is, it is—I see it, I see it.

John. O my old eyes!—but I know his voice now. (*Stretches out his hand, which Harford grasps.*)

Harf. My good old man! O that you could see me as clearly as I do you!

John. Enough—enough—it is you, and I am contented.

Mary. O happy day! O happy day!

Harf. Did you think I could ever forget you?

John. O no—I knew you better—but what a long while it is since we parted.

Mary. Fifteen years come Whitsuntide.

Harf. The first time I set foot in England all this long interval was three weeks ago.

John. How good you were to come to us so soon.

Mary. What a tall strong man you are grown!—but you have the same sweet smile as ever.

John. I wish I could see him plain—but what signifies! he's here, and I hold him by the hand. Where's the other good gentleman?

Beaum. Here—very happy to see such worthy people made so.

Harf. He has been my dearest friend for a great many years, and I am beholden to him almost as much as to you two.

Mary. Has he? God bless him and reward him.

Harf. I am grieved to think what you must have suffered from hardship

and poverty. But that is all at an end—no workhouse now.

John. God bless you! then I shall be happy still. But we must not be burdensome to you.

Harf. Don't talk of that—As long as I have a shilling, it is my duty to give you sixpence of it. Did you not take care of me when all the world forsook me—and treated me as your own child when I had no other parent—and shall I ever forsake you in your old age! Oh never—never!

Mary. Aye, you had always a kind heart of your own. I always used to think our dear Ned would some time or other prove a blessing to us.

Harf. You must leave this poor hut, that is not fit to keep out the weather, and we must get you a snug cottage either in this village or some other.

John. Pray, my dear Sir, let us die in this town, as we have always lived in it.

And as to a house, I believe that where old Richard Carpenter used to live in is empty, if it would not be too good for us.

Harf. What, the white cottage on the green? I remember it—it is just the thing. You shall remove there this very week.

Mary. This is beyond all my hopes and wishes.

Harf. There you shall have a little close to keep a cow—and a girl to milk her, and take care of you both—and a garden well stocked with herbs and roots—and a little yard for pigs and poultry—and some good new furniture for your house.

John. O too much—too much!

Mary. What makes me cry so, when so many good things are coming to us?

Harf. Who is the landlord of that house?

John. Our next neighbour, Mr. Wheatfield,

Harf. I'll go and speak about it directly, and then come to you again. Come, Beaumont. God bless you both!

John. God in heaven bless you!

Mary O happy day—O happy day!

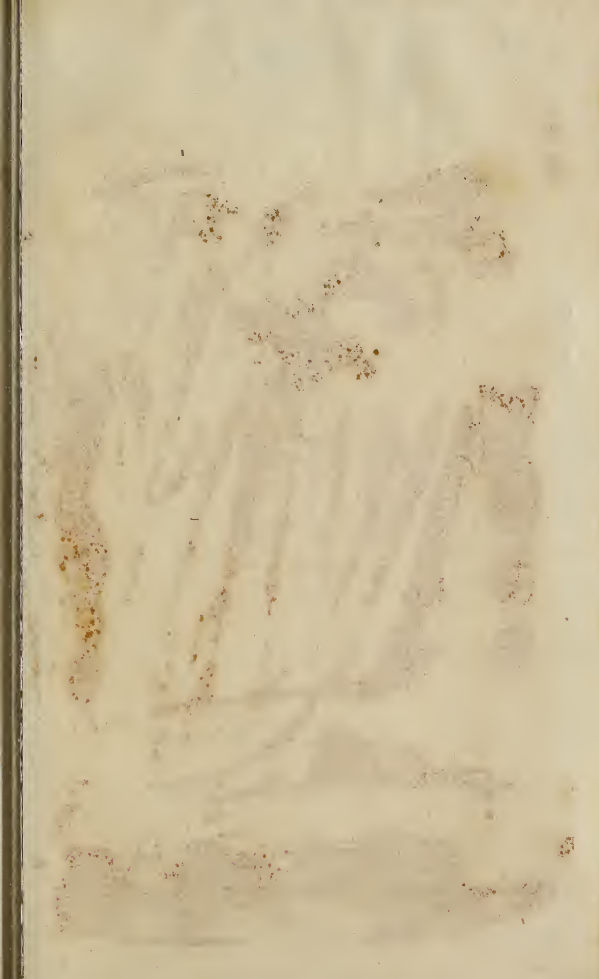
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